County Borough of Brighton.

ANNUAL REPORT

ON THE

HEALTH,

SANITARY CONDITION, &c.

OF THE

COUNTY BOROUGH OF BRIGHTON,

FOR THE YEAR 1902.

BY

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Medical Officer of Health

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COUNTY BOROUGH OF BRIGHTON.

Sanitary Committee.

THE MAYOR (MR. ALDERMAN BUCKWELL),
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" " BURBERRY,
" " BUTT-THOMPSON (Chairman),
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" " HOLLOWAY,
" " LINTOTT,
" " McCLEAN,
" " SMITHERS,
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ALBERT WOOD, Senior Clerk.
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House Physician and Deputy to Medical Officer of Health.

C. J. THOMAS, M.B., B.Sc., Lond., Jan.-March, 1902.
W. J. BARCLAY, M.B., Edin., D.P.H., April-Sept., 1902.
A. W. J. MACFADDEN, M.B., Edin., D.P.H., Oct., 1902-March, 1903.

Chief Inspector of Nuisances.

JAMES F. SKINNER (Certif. San. Institute).

Medical Officer of Health: ARTHUR NEWSHOLME, M.D.

PREFACE.

TOWN HALL,
March 30th, 1903.

To the Sanitary Committee of the Brighton Town Council.

GENTLEMEN,—

I beg to present herewith, in accordance with my statutory duty, my Annual Report on the sanitary circumstances of the Borough of Brighton and the health of its inhabitants. This report differs in some respects from most of its predecessors. In the first place, I have deemed it advisable to incorporate in it the details respecting Brighton furnished by the census report for 1901, as these details are frequently required for reference by both Town Councillors and Officials. In the next place, the facts as to certain diseases are set forth in greater detail than usual. In regard to Diphtheria this has been done because, as will be seen by studying these details, the prevention of its spread depends in a very large measure on the recognition of slight and insignificant illnesses caused by it.

Our new measures for the prevention of Consumption have been set out in detail, in view of the frequent inquiries from other districts for these and other particulars. The work is new, and an exact statement of what is being done is required in the interests of the community.

The Medical Officer of Health is required to state in his Annual Report the action taken under the Factory and Workshops Act, and in this report are incorporated details as to what has been done in relation to underground bakehouses.

I wish to express to the Sanitary Committee and the Town Council my appreciation of the support always given to public health work, and, at the same time, to the Staff of my department, whether at the Sanatorium or in the Town Hall, who have worked assiduously and devotedly.

I am, Gentlemen,
Your obedient Servant,

Arthur Newsholme, M.D.
Medical Officer of Health.

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A.—VITAL STATISTICS AND PREVENTIVE MEDICINE.

POPULATION.

The estimated population of the County Borough at the middle of 1902 was 124,539. A detailed report, giving the main results of the 1901 Census Report, so far as they relate to Brighton and the neighbouring parts of Sussex, is given as a supplement to this Report.

During 1902 the Borough Surveyor informs me that 551 new dwelling-houses were passed by the Town Council, as compared with 352 in 1901 and 367 in 1900. These were situate in the following Wards:—Preston Park, 298; Lewes Road, 117; Preston, 79; Queen's Park, 27; Kemp Town, 20; St. John's, 4; Montpelier, 3; Pier, Pavilion and West Wards, 1 each. By means of these figures the populations for each ward given on page 105 have been calculated.

BIRTHS.

The total number of births registered in the Borough in the 53 weeks ending January 3rd, 1903, was 3,072,—1,576 of boys and 1,496 of girls. This is equivalent to a birth-rate of 24·3 per 1,000 inhabitants. The birth rate of seventy-six of the largest English towns was 30·0 per 1,000, that of London being 28·5. For a comparison of the birth-rate with that of previous years see Table I.

Of the births, 197 were of illegitimate children, forming 6·4 per cent. of the total births, as compared with 5·3 per cent. in the previous year. 67 births occurred in the Workhouse, of which 54 were of illegitimate children.

Comparison of Births and Deaths in Successive Years.

Years.	Births.	Birth-Rate per 1,000 inhabitants.	Deaths from all Causes.	Death-Rate per 1,000 inhabitants.	Death-Rate from the seven chief Infectious Diseases per 1,000 inhabitants.	Death-Rate under one year of age per 1,000 births.	Rate of Natural Increase of Population.
1881	3301	30·6	2059	19·0	2·20	128	11·6
1882	3284	30·2	2372	21·8	4·40	187	8·4
1883	3236	29·6	2131	19·5	2·50	160	10·1
1884	3248	29·1	2064	18·8	1·77	162	10·3
1885	2981	26·9	1952	17·6	1·43	132	9·3
1886	2957	26·5	1986	17·8	1·97	160	8·7
1887	3038	27·0	1988	17·7	2·33	148	9·3
1888	2791	24·6	1928	17·0	1·42	149	7·6
1889	2964	26·0	1833	16·1	1·60	131	9·9
1890	2915	25·4	2232	19·1	2·57	164	6·3
1891	3031	26·2	2097	18·2	1·06	137	8·0
1892	2958	25·3	2232	18·9	2·09	151	6·4
1893	2981	25·3	2165	18·4	1·84	169	6·9
1894	3055	25·8	1943	16·4	1·20	137	9·4
1895	3057	25·7	2250	18·8	1·72	164	6·9
*1896	3025	25·3	1975	16·1	1·66	124	9·2
1897	2986	24·8	1823	15·0	1·54	144	9·8
1898	3035	25·0	2057	16·7	1·69	179	8·3
1899	3058	25·1	2322	18·9	2·49	173	6·2
1900	2920	23·8	2209	17·8	2·25	166	6·0
1901	2984	24·1	2025	16·4	1·77	162	7·7
*1902	3072	24·3	1998	15.8	1·26	125	8·5

*53 weeks.

The birth-rate in Brighton has declined to the extent of about 20 per cent. since 1882. Although the population has greatly increased there are now fewer births in a much larger population. The decline has been steady and continuous, and it has been shared by nearly every part of the United Kingdom. In France, the population, owing to similar causes to those in operation here, has ceased to increase; in the United States the population is replenished chiefly by the increase among foreign immigrants, the native Americans contributing little towards the increase of population; in Germany there is a less decline in the birth-rate, while in Russia and certain other countries the causes to which I have alluded have hitherto operated but little. Before discussing these causes, it will be well to obtain an exact measure of the birth-rate. A statement of the number of births per 1,000 of total population is not very accurate. The number of births depends upon the number of women of child-bearing age, *i.e.*, aged 15 to 45 years, and particularly upon the number of married women at these ages. The best method of stating the birth-rate is therefore to give the number of legitimate and illegitimate births in terms of the married and unmarried women respectively aged 15 to 45. In the following table this is done for three census years :—

Year.	Legitimate birth-rate per 1000 married women aged 15 to 45.	Illegitimate birth-rate per 1000 unmarried women aged 15 to 45.
1881	256·3	12·8
1891	224·4	11·3
1901	217·9	10·8

It will be seen that there has been a decline in both the legitimate and the illegitimate birth-rate, the decline in the former in 20 years amounting to 15 per cent., and in the latter to 16 per cent. The apparent reduction stated in terms of the crude birth-rate (Table, page 6) was 21·2 per cent. For practical purposes the influence of the birth-rate on the increase of population is as well shewn in the Table on page 6 as in the above table, as the natural increase by which the future size of the population is chiefly determined, depends on the excess of births over deaths, whatever may be the proportion of the population aged 15 to 45. The chief utility of the above table is to show that while there has been a diminution in fecundity of married life it has not been so great by 6 or 7 per cent. as is indicated by the crude birth-rate.

Rate of Natural Increase of Population.—This is based on the balance between births and deaths. The effect of the declining birth-rate is therefore to some extent concealed by the still greater decline in the death-rate which has been secured. The latter cannot, however, continue to compensate for the lowered birth-rate. *A lowered birth-rate continued for a series of years means an older population*, i.e., a population which on the whole must have a higher death-rate, other things being equal, than the same population when it was composed of younger persons. Hence, if it be agreed that a stationary population like that of France is contrary to our national interests (and there can, I think, be no difference of opinion on this point, except among a limited few), the reduction of the birth-rate calls for anxious study.

The *causes of the reduced birth-rate* are not far to seek. There has been no commensurate reduction in the marriage-rate. The reduced birth-rate is caused by a diminished number of children to each marriage, not by a diminished number of marriages. The average age at which marriage takes place has become rather higher, and this has had some slight influence, but neither of these causes explains more than a small fraction of the total reduction in the birth-rate; nor is there the slightest reason for believing that the potential fecundity of civilized man is declining. The one chief predominant cause of the lowered birth-rate is the deliberate prevention of child-bearing. The public discussion of this subject is repugnant. It needs, however, to be faced, and all well-wishers of the community should be acquainted with the real state of matters. Two means of keeping families small are practised: (1) the production of abortion, (2) the prevention of conception by artificial means. The former is a criminal offence, and, although occasionally practised, is in this country only a minor cause of the reduced birth-rate. The practices involved under the second head have been taught in various pamphlets which have received a wide circulation, and it is to these practices that we owe the serious decline of our national birth-rate.

DEATHS.

During the year 1902, 1,998 deaths were registered as belonging to Brighton, 994 of males and 1,004 of females. This shews an annual death-rate of 15·8 per 1,000 of estimated population, as compared with 16·4 in 1901, and 17·8 in 1900.

The general course of the death-rate in Brighton for a series of years has been as follows :—

		Death-rate from all causes.
Ten years —	1851-60	25·0.
,, ,,	1861-70	25·6.
,, ,,	1871-80*	20·5.
,, ,,	1881-90	18·8.
,, ,,	1891-1900	17·6.
,, ,,	1901	16·4.
,, ,,	1902	15·8.

(*See also* TABLE, *Page* 6).

The average death-rate in the 76 largest English towns during 1902 was 17·4, that of London being 17·7.

The death-rate of Brighton was lower than that of any other of these towns with an equal or larger population, with two exceptions (Croydon and Leicester) in which the death-rate was lower, and one exception (Bradford) which had the same death-rate as Brighton. These towns have all a much less density of population than Brighton†, and have each had the advantage of including in their area suburban districts, which always reduce the total death-rate. As I have explained in former reports, the Municipal Borough of Brighton does not include a large portion of the population which has overflowed from it, and its statistics, when comparisons are made with other large towns, are to this extent handicapped.

A further correction of the crude death rate is required, for varying age distribution of population in different towns; but this cannot be applied until the factors of correction are published by the Registrar-General.

The central part of Brighton is becoming to an increasing extent a business centre for the whole of Sussex. This is shewn, among other indications, by the statistics as to workshops (page 87) and as to occupations (page 9 of Supplement to this Report giving Census Returns). The residential parts of Brighton are becoming more and more spread out; some of them having spread over the Municipal boundaries, others on to the hill slopes in the north-west, northern and north-eastern parts of the Borough. The provision of tram routes to these outskirts is rapidly increasing this peripheral extension of the Borough, which is most beneficial to the health of the inhabitants of Brighton. Happily none of our industries are of such a character as to interfere with the retention of Brighton's reputation as a health resort, or to encroach in any way on its unrivalled sea front. The smoke nuisance has never seriously affected Brighton, and when the Electricity Generating Works are removed to Southwick the chief offender under this head will have disappeared.

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* In 1874, Preston was incorporated with the Municipal Borough.

† In Brighton there are 49 persons to an acre.

The death-rate of Brighton is based on the statistics of the more central part of greater Brighton, the portion of its population which would contribute least to the death-rate having, to a large extent, migrated to Aldrington, Portslade, Hassocks, East Preston, &c. In view of the fact that we cannot include in our statistics a large portion of the population which is really Brightonian, a reduction of 39 per cent. in the death-rate below the average death-rate for 1861-70, and of 23 per cent. below the average death-rate for 1871-80, is a matter for hearty congratulation. In attacking consumption (page 52) we have now opened the campaign against the preventible disease which contributes a larger quota to our mortality than any other disease.

The Table on page 73 shows that the total deaths registered in Brighton during 1902 was 2,052. Of these 92 were non-residents, occurring in public institutions in the Borough. Fifteen deaths of residents of Preston occurring in Shoreham Workhouse are also credited to the death-rate of Brighton. The total death-rate is therefore 15·7, the death-rate according to the Registrar-General 15·8, and the gross death-rate 16·2 per 1,000.

DEATH OF VISITORS.

Of the total 2,052 deaths registered in Brighton during last year, 93 occurring in private houses, 56 in the County Hospital, and 13 in the Children's Hospital, 10 in the Workhouse and 12 in the Home for Incurable Children and 1 in the Female Convalescent Home were stated to be of visitors. The return of deaths among visitors is incomplete, many of the deaths occurring amongst visitors not being marked as such. The County Hospital in particular draws a considerable number of patients from surrounding districts, as will be seen from the following table of deaths in that institution :—

	1899.	1900.	1901.	1902.
Deaths of Inhabitants of Brighton	90	89	102	119
Deaths of persons from the rural districts of Sussex, &c.	21	17	31	35
Deaths of persons from Hove	7	6	17	12
Deaths of persons from London, &c.	2	2	3	9
Total Deaths in the Sussex County Hospital	120	114	153	175

Thus, taking the average of four years, 28·9 per cent of the total deaths in the County Hospital were of non-residents.

Of the 43 patients dying in the Children's Hospital during 1902, four came from Hove, three from Portslade, and one each from Ringmer, Horsmonden, Chailey, Lewes, Fishersgate and Chalvington.

The Registrar-General excludes from the Brighton returns the deaths occurring in the Female Convalescent Home, Marine Parade, in the Home for Incurable Children, in the Sussex County Hospital, and in the Borough Sanatorium respectively, of persons who had not resided in the Borough prior to their admission into these respective institutions; and includes on the other hand the deaths of any Preston paupers which occur in the Steyning Union Workhouse. Fifty-six deaths of outsiders occurred, as shewn above, at the County Hospital, one in the Convalescent Home and twelve in the Home for Incurable Children. The result of the correction carried to this extent is to reduce the total deaths by 69. No correction is made for the Children's Hospital and other institutions in the town and no account is taken of the much larger number of visitors who die in Brighton, but not in any public institution in it.

DEATHS IN PUBLIC INSTITUTIONS.

Of the total deaths, 248 occurred in the Workhouse, 175 in the Sussex County Hospital, 43 in the Children's Hospital, 34 in the Sanatorium, 5 in the Lying-In Hospital, 6 in the Barracks, 15 in the Shoreham Workhouse, 12 in the Home for Incurable Children, 1 in the Deaf and Dumb Institution, and 1 in the Female Convalescent Home, in Marine Parade.

DEATHS ACCORDING TO WARDS.

In Table II., page 105, the chief statistics are given for each ward. In Table III., page 107, the more important causes of mortality in each ward are set out; and in Table IV., the death-rates for tuberculosis, for respiratory diseases and for all causes are given.

INFANTILE MORTALITY.

The infantile death-rates for each ward, beginning with the ward having the lowest death-rate, were as follows:—West 36, Pavilion 84, Preston Park 90, Preston 107, Hanover 112, Lewes Road 113, Regency 117, St. Peter's 120, St. Nicholas 137, Kemp Town 142, St. John's 152, Queen's Park 160, Pier 168, Montpelier 173. In the Montpelier Ward the 13 total infantile deaths on which the above rate is based include 8 deaths in the Children's Hospital of visitors. The true infantile mortality in Montpelier Ward is only 66.

Mortality among Illegitimate Infants.—The total number of deaths under one year of age in 1902 was 387. Of this number 47 were illegitimate children.

Stated in proportion to numbers living, the relative mortality among legitimate and illegitimate infants was as follows :—

	1898.	1899.	1900.	1901.	1902.
Deaths of legitimate infants per 1,000 legitimate births	169	199	156	153	118
Deaths of illegitimate infants per 1,000 illegitimate births	316	354	345	310	238

Illegitimacy halves the chance which an infant possesses of surviving to the end of the first year of its life. The infantile mortality for the entire Borough was 125 per 1,000 births. It was, with one exception, lower than any other year on record (Table, page 6). This was chiefly owing to the favourable diarrhœal death-rate.

The following table gives the deaths from all causes, classified according to age and sex :—

Ages.	Males.	Females.	Persons.
0-3 months	123	87	210
3-6 ,,	46	26	72
6-12 ,,	58	47	105
Total under 1 year	227	160	387
1-2 years	60	52	112
2-3 ,,	19	11	30
3-4 ,,	14	18	32
4-5 ,,	14	13	27
Total 1 to 5 years	107	94	201
5-10 years	16	20	36
10-15 ,,	9	15	24
15-25 ,,	37	44	81
25-35 ,,	54	54	108
35-45 ,,	83	70	153
45-55 ,,	95	80	175
55-65 ,,	111	115	226
65-75 ,,	117	149	266
75-85 ,,	111	143	254
85 and upwards	26	60	86
Age unknown (found drowned)	1	—	1
Total No. of deaths	994	1004	1998

DEATHS AND SICKNESS ACCORDING TO SEASONS.

Table VII., page 110, gives the weekly deaths from the chief causes of death. In the following table the incidence of notifiable infectious diseases, according to the months of the year, is shewn.

Number of Cases of Infectious Diseases notified in each month of 1902.

	Small Pox.	Diphtheria and Membranous Croup.	Scarlet Fever.	Typhoid Fever.	Erysipelas.	Puerperal Fever.	Chicken Pox.
January	1	45	12	7	9	—	11
February	—	42	23	3	12	—	20
March	3	23	3	2	10	1	25
April	—	20	13	3	9	1	23
May	4	12	6	3	10	—	29
June	—	34	8	3	8	1	20
July	—	27	4	7	6	—	30
August	—	31	11	5	4	—	8
September	—	26	24	5	6	1	9
October	—	90	16	8	9	—	31
November	—	54	20	8	9	—	60
December	—	33	6	11	9	—	57
	8	437	146	65	101	4	323

Three cases of small pox were notified as chicken pox.

CHIEF CAUSES OF DEATH.

The chief causes of death, and the number of deaths from each disease or group of diseases, are tabulated in Table V., page 108. This table gives the relative incidence of different diseases, and the incidence of each disease in the two sexes and at different ages.

THE NOTIFICATION OF INFECTIOUS DISEASES.

On March 1st, 1891, the Infectious Diseases (Notification) Act was adopted in Brighton.

The returns furnished to me under this Act shew that the number of *cases* of Infectious Diseases notified during 1902 was:—Diphtheria, 435; Membranous Croup, 2; Scarlet Fever, 146; Enteric Fever, 65; Erysipelas, 101; Puerperal Fever, 4; Small Pox, 8; Chicken Pox, 323.

The above is the number of supposed *cases* of infectious disease. Further observation in a certain proportion of these led to a revision of the diagnosis.

Three cases of Diphtheria, 5 of Erysipelas, 4 of Chicken Pox were notified severally by two doctors.

The total number of notifications, excluding Chicken Pox (including 19 by myself) was 763, as compared with 1,036 in 1901. Of the total 1,096 including Chicken Pox, 232 occurred in public medical practice—the amount payable for the certificates being £11 12s.; while 855 occurred in private medical practice—the amount payable being £105 12s. 6d. The total amount paid for notification certificates was £117 4s. 6d.

Of the cases of Small Pox which occurred among persons vaccinated some years previously, the following statement shows the essential facts :—

Reference No. in Preceding Table.	Vaccinated.	Nature of Attack of Small Pox.
(2)	34-35 yrs. previously...	Very slight, about 30 pustules.
(3)	3-4 ,, ,, (only one scar)	Six pimples, never became pustular.
(5)	35-36 ,, ,, ...	Discrete, mild, numerous pustules.
(9)	21-22 ,, ,, ...	Discrete, mild, pustules few.
(10)	37-38 ,, ,, ...	Very slight, about 20 pustules.

We may next study the cases occurring in persons who were vaccinated or re-vaccinated while hatching Small Pox.

(A) *Patients primarily vaccinated during the incubation period of Small Pox.*

Reference No. in Preceding Table.	Interval between Vaccination and appearance of Small Pox rash.	Nature of Attack of Small Pox.
(4) Girl aged 2 years ...	10 days*	Extremely slight ; about 20 pustules.
(8) Baby aged 3 weeks	10 days*	Severe primary stage; discrete, attack aborted in 2nd stage.

i.e., 4 days after the disease was caught.

(B) *Patients vaccinated in infancy and re-vaccinated during the incubation period of Small Pox.*

Reference No. in preceding Table.	Date of Vaccination.	Interval between Re-vaccination and appearance of Small Pox rash.	Nature of Attack of Small Pox.
(6) Woman aged 40 years	Infancy	10 days *	Very slight; 20 to 30 pustules.
(7) Girl aged 15 years ..	do.	10 days *	Do. ; a dozen pimples

* *i.e.*, 4 days after the disease was caught.

In each of these cases, vaccination or re-vaccination was effected more than three days after becoming infected by Small Pox, and was therefore too late to prevent an attack. The attack was, however, of an extremely slight character in all the cases.

In the tabular statement, on page 14, is given a list of the "contacts" in the immediate households concerned. In all these "contacts" the association was so close as to make it probable that they had actually in every case received infection. Some were vaccinated or re-vaccinated within three days of exposure to infection. Many others, whose infantile protection remained valid, also escaped. Others were vaccinated or re-vaccinated more than three days after exposure to infection. These were attacked with more or less severity.

This statement does not comprise a complete list of "contacts," as in addition a considerable staff of

Doctors,
Nurses,
Sanitary Inspectors,
Disinfectors,
Wardmaids, and
Ambulance Driver,

came into more or less intimate contact with the above patients. Our experience has been one of complete immunity from attack among the staff, every member of which has been re-vaccinated. This has been our experience not only in the present year but during the last fifteen years. In the districts of London where re-vaccination of inspectors and disinfectors has not been enforced, numerous cases of Small Pox have occurred among them.

The six cases of Small Pox occurring among "contacts" may now be stated more fully in relation to their condition as to vaccination.

Case No. II. (4). This was a girl aged 2 years. Her father failed with Small Pox on March 7th, the eruption appearing on the 10th. He was not recognized and isolated until the 13th. The girl's rash appeared on the 23rd, and she, therefore, almost certainl yreceived the infection on the 10th March, four days before she was vaccinated. She comes within the well-known rule that protection cannot be ensured unless vaccination is done within three days of the reception of infection.

The following scheme will enable this case and that of her brother to be more clearly understood.

March	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Man, aged 38 [Case II. (2)]	Onset of Small Pox			Small Pox rash appeared			Removed to Hospital													
Daughter, aged 2 [Case II. (4)]				Probable date of infection			Vaccinated								Ailing		A few pimples	Removed to Hospital		
*Son, aged 4 [Case II. (3)]					Probable date of infection													A few pimples	Removed to Hospital	

* Vaccinated in infancy in one place (one small scar).

Case No. III. (8).—This patient was a baby aged three weeks, unvaccinated. His father failed with small pox on May 3rd or 4th, the Small Pox eruption being first noticed on the 7th. The baby was vaccinated on the 9th and failed with small pox, the rash appearing on the 19th. The course of events can be expressed diagrammatically as follows :—

May	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Man, aged 36 [Case III. (5)]	Onset				Small Pox rash appeared		Removed to Hospital											
Baby, aged 3 weeks [Case III. (8)]				Probable date of infection *			Vaccinated										Small Pox rash appeared	

* Reckoning the 14th day as the day when the small pox eruption appears, after the receipt of infection.

Thus the baby was vaccinated later than the interval which enables vaccination to overtake Small Pox. His attack of Small Pox was at first very severe. Only one vaccination vesicle had "taken," but, although there was an abundant eruption of Small Pox, the second stage (that of suppuration) did not follow, the rash fading away in a manner which strongly impressed me with the mitigating power of vaccination, even when performed too late entirely to prevent an attack.

Case No. II. (3) occurred in a patient who had been vaccinated less than 12 years previously. It was a boy aged 4, vaccinated in infancy, only one small place having taken. He had only 6 pimples of Small Pox altogether. The re-vaccination done on the date of appearance of the Small Pox rash does not enter into the problem.

Particulars of the remaining three cases of Small Pox among contacts are given in the tabular statement on page 14.

Case No I.—We may consider lastly the contacts with Case I. who were unvaccinated when first exposed to infection, but were vaccinated within three days of this date. They illustrate very well the rule as to the protective power of vaccination laid down in the preceding pages, which the medical experience of many epidemics has made almost axiomatic,

Jan.	23	24	25	26	27	28	29	30	31	*Feb.*1	2
Girl aged 18 [Case I. (1)]	—	Onset of Small Pox	—	Small Pox rash appeared	Removed to Hospital	Died February 10th.					
Girl aged 10	—	—	—	—	Vaccinated	Escaped attack.					
Boy aged 2	—	—	—	—	Vaccinated						

The above patient's attack was detected almost as soon as the rash appeared, and she was at once removed to hospital. Both of the above unvaccinated children had been in intimate contact with the patient, the girl sleeping with her sister. Only two complete days of possible exposure to infection intervened between the onset of the first case and the vaccination of the two children, and the children were therefore protected in accordance with the rule previously laid down. Although this was most fortunate for these two children, it would be folly for any parent to trust to such hurried vaccination, the success of which depends on the prompt recognition of the first case of Small Pox, and may be thwarted by accidental failure of the vaccination to "take." In this family there does not appear to have been any objection to vaccination. It had been neglected for these three out of six children in connection with changes of address; with the result that the patient who received the outside infection died, and the two remaining unvaccinated children were saved by the doctor's promptitude in recognizing the first case, and the consequent promptitude in vaccination of these two.

CHICKEN POX.

In view of the prevalence of Small Pox in London, and of the difficulty in distinguishing modified Small Pox from Chicken Pox, the Council decided to add Chicken Pox to the list of compulsorily notifiable diseases for one year from January 24th. [The compulsory notification of Chicken Pox has been extended for one year from January 24th, 1903].

From January 24th to December 31st, 322 cases of Chicken Pox were notified, 272 cases in private and 50 in public practice, the fees payable for the notifications being £36 10s.

The patients' ages and sex were as follows:—

	0-	1-	5-	10-	15-	20-	25-	35-	45-	Total.
Male	15	45	65	19	3	3	—	(3)	—	153
Female	18	64	62	19	4	1	1	—	—	169
	33	109	127	38	7	4	1	(3)	—	322

All the three cases over 35 years of age proved to be Small Pox. The account of the third case will be included in my next annual report. Details as to the two earlier cases are given on page 14.

The question arises whether the expenditure incurred in the notification of Chicken Pox is justified by the results obtained. The object with which this disease was added temporarily to the compulsory list was to ensure that cases of Small Pox should not be missed, and the fact that three cases notified as Chicken Pox proved to be modified Small Pox, and were consequently detected earlier than would otherwise have occurred, appears to me amply to justify the expense incurred.

It may be argued that if the doctors who saw these three patients had not had the alternative of notifying them as Chicken Pox, they would have drawn my attention to them as possible Small Pox. In view of the exact history of the circumstances in two of these three cases, I do not think this would have happened, and in each instance a considerable outbreak would probably have had to be combatted before information of it had been secured.

It has been impossible for me to visit every case of Chicken Pox which has been notified, but in all cases exact enquiries are made under the following heads.

The following questions are added to the ordinary inspection sheet:—

Date of last vaccination and result.
History of being out of Brighton or of receiving visitors.
If any suspicious rash in older members of family.
Symptoms ushering in attack.
Interval between onset of first symptons and appearance of rash.
Whether previously had Chicken Pox.

The answers to these questions determine whether a medical visit is needed. If the case has occurred in a vaccinated child, no visit is made. If in an unvaccinated child further investigation occurs, and in all adult cases, immediate investigation occurs.

The reasons given above led me to advise the Town Council to enforce the compulsory notification of Chicken Pox for another year, and this has been done.

SCARLET FEVER.

The incidence of Scarlet Fever since notification came into operation is shewn in the following table. The epidemic of 1899 declined during 1900. During 1901 only 176, and during 1902 only 146 cases were notified.

	Number of cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	320	7	2·1
1893	408	9	2·2
1894	185	3	1·6
1895	164	4	2·5
1896	206	5	2·3
1897	270	10	3·7
1898	305	6	2·0
1899	667	8	1·2
1900	474	10	2·1
1901	142	1	·6
1902	117	2·4	2·1

Of the total 146 cases (see Table page 112), 112 or 77·5 per cent. were treated in the Sanatorium. Three deaths occurred, two among the 34 treated at home, and one among the 112 treated at the Sanatorium.

In my last report, I drew attention to the difficulty in preventing the spread of Scarlet Fever, owing to the frequent occurrence of unrecognized attacks. This difficulty is a drawback almost necessarily involved in the prevailing mild type of the disease. Notwithstanding this difficulty Scarlet Fever prevailed to a less extent in 1902 than in any year since the notification of infectious diseases was enforced.

The following table summarises our experience as to the results of hospital and home isolation of Scarlet Fever during the last four years :—

1899-1902 inclusive.

I.—*Cases Removed to Hospital.*

Number of Cases of Scarlet Fever.		Number of Persons in the same Family who escaped having Scarlet Fever.		Number of Persons in Second and Third Families in the same house who escaped having Scarlet Fever.	
Under 20.	Over 20.	Under 20.	Over 20.	Under 20.	Over 20.
916	79	1799	1767	384	809
	II.—*Cases Treated at Home.*				
153	16	150	284	24	59

Number attacked per 100 Persons not previously having had Scarlet Fever.

I.—*Cases Removed to Hospital.*

Attack-rate among those living in the same Family, and aged.		Attack-rate among total Persons living in the same House, and aged	
Under 20.	Over 20.	Under 20.	Over 20.
33·7	4·3	29·5	2·9
II.—*Cases treated at Home.*			
50·5	5·3	46·8	4·5

This table is not presented as setting forth exactly the relative utility of home and hospital treatment. It can only shew a fragment of the truth under this head. So far as it goes it is relatively satisfactory, but in interpreting it the facts that a considerable number of slight cases of Scarlet Fever escape detection, that early hospital isolation is frequently not secured, and that hospital-treated cases usually belong to much poorer families than home-treated cases, have to be borne in mind.

The utility of hospital isolation is greatest in the cases in which prompt recognition of the disease and removal to hospital are secured. The following table shows respecting the first case in every house in which Scarlet Fever occurred during 1901, the day of the disease on which patients were removed to hospital :—

Day of Disease on which the Patient was removed.	No. of primary cases of Scarlet Fever in each Household.	
	(*a*) Households in which only one case occurred.	(*b*) Households in which more than one case occurred.
1st	5	—
2nd	11	—
3rd	16	4
4th	9	2
5th	6	1
6th	4	1
7th	2	—
8th	1	—
10th	1	—
11th	1	—
12th	—	1
13th	2	—
14th	1	—
16th	1	—
19th	—	1
28th	1	—

Incidence on Households.—In 82 houses 1 case, in 14 houses 2 cases, in 5 houses 3 cases, and in 2 houses 5 cases occurred. This makes a total of 103 infected houses. In addition to the above, 5 cases were notified from the Children's Hospital, 2 from the County Hospital, 2 from a Home for Young Women, and 2 were brought into a cottage in the Borough from Roedean School.

"*Return*" *cases of Scarlet Fever.*—In four families the discharge of a scarlatinal patient was followed by the occurrence of a later case of Scarlet Fever. The particulars are as follows :—

	Condition on admission and while in Hospital.	Condition on discharge.	Infected Patient.
J. I., æt. 4½...	Admitted on third day of disease. Otorrhœa within a few days of admission. Rhinorrhœa on admission.	Sent home after 29 days' stay in hospital. Double otorrhœa and rhinorrhœa.	B. F. I., æt. 3½, onset Scarlet Fever 27 days after J. I. left hospital. She was admitted to hospital on third day of disease. Then had rhinorrhœa, and next day left otorrhœa. A few days later right otorrhœa. Went home on 67th day of disease. Mrs. I. failed with Scarlet Fever nine days later.
W. M., æt. 5	Admitted on fifth day of disease. Profuse rhinorrhœa on admission. Later enlarged cervical glands.	Sent home after 51 days' stay in hospital. Rhinorrhœa had ceased for one week.	F. M., æt. 9, had sore throat a week before W. M.'s return home. Failed with Scarlet Fever 12 days after W. M.'s return home.
F. N., æt. 3	Admitted on third day of disease. Purulent rhinorrhœa within two days of admission. Right otorrhœa later.	Apparently in a normal condition.	D. N., æt. 6, failed with Scarlet Fever eight days after F. M.'s return home.
G. G., æt. 7...	Admitted on first day of disease. Had rhinorrhœa throughout entire illness.	Still some rhinorrhœa.	G. G. left the hospital after 87 days' stay, went into country for 16 days. On returning had no rhinorrhœa, and none when examined by doctor three days later. F. G., æt. 6, failed with Scarlet Fever three days later. Another sister, E. G., æt. 6, vomited 23 days earlier, but no rash or desquamation. Possibly this was a missed case.

During the year, E. H., October 5th, was discharged from a metropolitan fever hospital, after 69 days' stay there. She returned home to Brighton having otorrhœa. This was attended to by the mother, who failed with scarlet fever four days after the first patient's return home.

In regard to these "return" cases, it is probable that, although in a certain proportion of cases the patient may serve merely as a carrier in his secretions of infection from the ward, in the majority of instances when "return" cases occur he is at the time of discharge, and for some time afterwards, an active incubator of scarlet fever organisms in his throat and nose. On this point I would lay stress on the analogy between Diphtheria and Scarlet Fever. In Diphtheria it is a well-known fact, irrespective of whether the patients are treated in hospital or at home, that a certain number remain infectious for protracted periods, and in these cases there is usually rhinorrhœa. In such chronic cases the infection may persist for three or more months (see pages 33 to 35).

What occurs in Diphtheria almost certainly occurs in Scarlet Fever in a small proportion of the total cases; and in Scarlet Fever, as in Diphtheria, it is not, in my opinion, as a rule a question of hospital influence, but of the natural history of the disease.

These chronic cases of Scarlet Fever and Diphtheria represent sports of the disease. The great difficulty in Scarlet Fever is that, unlike Diphtheria, one has at present no trustworthy bacteriological test when the patient is discharged; hence the greater difficulty in controlling "return" cases in Scarlet Fever than in Diphtheria.

DIPHTHERIA.

The incidence of Diphtheria in Brighton, since notification came into operation, is shewn in the following table.

	Number of infectious cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	93	20	20·2
1893	157	30	18·4
1894	109	22	21·1
1895	172	16	8·8
1896	142	17	10·9
1897	154	10	6·5
1898	313	18	5·8
1899	547	51	9·2
1900	554	58	10·2
1901	567	52	9·1
1902	349	29	8·3

This disease is happily steadily on the decline. In my experience it is the most difficult and insidious of infectious diseases to combat; a fact which the following illustrative details as to missed cases, cases of protracted infection, and cases of recurrent infection, go far to explain. The wider causes producing epidemics of Diphtheria have been fully discussed in my three last annual reports and elsewhere. Briefly, the conclusions are, that Diphtheria has no necessary relationship with defects of house drainage or public sanitation; that it is spread almost solely by personal infection from patient to patient, particularly in crowded schools; and that this infection is more intense and pervasive in certain years. I have shewn elsewhere that such epidemics occur chiefly, if not solely, in years in which the rainfall is deficient, and that the epidemics are on the largest scale when three or more consecutive years of deficient rainfall occur. In this connection the table on page 49 should be studied.

The total number of cases of Diphtheria notified during 1902 was 435, and of Membranous Croup 2. A considerable number of other cases having no obvious clinical evidence of the disease were recognized by bacteriological means, but were never formally notified. As will be seen by details of individual outbreaks given later, these missed cases form the chief means by which infection is spread. Some of the bacteriological cases of Diphtheria were never ill, the persons merely harbouring the bacilli of Diphtheria ("carrier cases").

Incidence in Households.—In 303 houses, one case; in 30 houses, two cases; in 15 houses, three cases; and in 3 houses, four cases occurred. In addition to the above, six cases were notified from the Workhouse, six from the Children's Hospital, and two from a Home.

Schools and Diphtheria.—During last year there occurred in Board Schools 88 primary and 17 secondary cases, and in Voluntary Schools 87 primary and 23 secondary cases of Diphtheria. The relative incidence of the primary cases in Board and Voluntary Schools compared with that in preceding years was as follows:—

Number of cases per 100 Children in average attendance in entire School.

	1899	1900	1901
Board Schools	1·60	1·91	·81
Voluntary Schools	1·24	1·03	1·35

The chief cause of the excess in Voluntary Schools in 1901 was the sharp outbreak in St. Mary's Schools (page 27), though a considerable number of cases occurred in the National Central Schools.

Particulars as to special school outbreaks follow.

The following series of cases occurred at St. Mary's Infants' School :—

	Onset.	School.	Class.	
D. Hd., æt. 3 years	Sept. 30	St. Mary's Infants	Babies	
N. T., æt. 4½ ,,	Sept. 27	do.	Cl. IV.	
B. Y., æt. 7 ,,	Oct. 3	do.	Cl. I.	Only absent for one day, then attended school till Oct. 17th. Neg. swab on Oct. 22nd.
R. S., æt. 5 ,,	Oct. 5	do.	Cl. II.	
N. D., æt. 4 ,,	Oct. 10	do.	Babies	
B. M., æt. 6 ,,	Oct. 11	do.	Cl. I.	
C. W., æt. 5 ,,	Oct. 15	do.	Cl. I.	Three secondary very slight cases, in same family.
O. D., æt. 6 ,,	Oct. 30	do.	Cl. IV.	Died.
B. H., æt. 7 ,,	Nov. 6	do.	Cl. III.	

No further cases occurred at this school after the above. The number on the roll of this school was 218 in October.

B. Y., the third in the above series, was never notified as Diphtheria, and was only absent from school for one day. There is little doubt, however, in the light of subsequent events that he had a very slight attack of Diphtheria and was the cause of several of the subsequent cases. He began to be ill October 3rd. On October 12th, his brother, Y. Y., æt 12, failed with marked Diphtheria. Y. Y. attended a Mission Sunday School on the same day, and sat in the same, class as B. M., æt 12, who failed with Diphtheria on October 15th. B. M., as will be seen from the following tabular statement, was the cause of a serious outbreak in St. Mary's Boys' School, which is in a street at some distance from the Infants' School. Thus a Sunday School in this instance formed an intermediate link between an infants' and a boys' day schools. But for the active and intelligent co-operation of the head-master of this school, this outbreak would probably have been much more protracted.

	Onset.	School.	Class.	
B. Y., æt. 7 years	Oct. 3	St. Mary's Infants	I.	Never recognized
Y. Y., æt. 12 ,,	Oct. 12	Park Street	—	Attended Sunday School while ill
B. M., æt. 12 ,,	Oct. 15	Eastern Road Sunday School	—	Attended same Cl. as Y.Y. Also attended St. Mary's Boys' School, while ill, on Oct. 16th, St. IV.
F. I., æt. 8 ,,	Oct. 19	St. Mary's Boys	St. IV.	Died
F. L., æt. 10 ,,	Oct. 21	do.	do.	
C. S., æt. 12 ,,	Oct. 21	do.	do.	
I. R., æt. 11 ,,	Oct. 26	do.	do.	
V. P., æt. 10 ,,	Nov. 6	do.	St. V.	

This School was closed Wednesday, 29th October to November 3rd, to allow of disinfection. A number of suspected contacts were excluded, and the outbreak abruptly ceased. The number on the roll of this Boys' School in October was 144.

The following series of cases occurred at Middle Street Board School in the second half of the year. Here, as in the preceding school outbreak, we were much indebted to the teachers of each of the three departments of the school for prompt co-operation, which greatly helped in limiting the outbreak. The infection appears to have been introduced into the school by D. T., of 39 N. Street, on the appended list. She was away from school half-days on October 14th and 15th, and then had a sore throat. No doctor. She was again absent from school on October 20th-25th inclusive, but returned to school on October 27th, 28th and 29th. The occurrence of other cases of Diphtheria in the same class at school led to enquiries about her, and at my request a swab was taken from D. T.'s throat by the doctor then in attendance on her mother, and Diphtheria bacilli were detected. Mrs. T., mother of the above patient, failed with a sore throat about October 20th. This was treated by the doctor in attendance for follicular tonsillitis, but on October 31st a positive swab was obtained from her as well as from D. T. The subsequent course of events was as follows:—

	Onset.	School.	Class.	Remarks.
D. T., æt. 12 ...	About Oct. 14	Middle St., Girls	St. III.	Returned to school Oct. 14-15, and Oct. 27-29.
M. Cu., æt. 10 ...	About Oct. 14	do.	St. II.	Away from school Oct. 15-17 with enlarged glands. Returned to school Oct. 20-29. Diphtheria bacilli found Oct. 30th.
N. S., æt. 10 ...	Oct. 19	do.	do.	Last at school Oct. 19.
M. M., æt. 12 ...	Oct. 19	do.	do.	Away from school Oct. 21-25. Returned Oct. 27-29. Diphtheria bacilli found Nov. 1.
B. N., æt 12 ...	Oct. 20	do	do.	Attended school until Oct. 30.
F. C., æt. 9	Oct. 20	do.	St. I.	Last at school Oct. 20.
N. E., æt. 11 ...	Oct. 24	do.	St. III.	Last at school Oct. 23.
H. N., æt. 8 ...	Nov. 1	do.	St. II.	Last at school Nov. 1.

The above cases occurred in three classes, St. II. and III. having about 50 children, and St. I. about 30 children, and it speaks much for the promptitude with which information as to the exclusion of suspected children was given and acted on that no further cases occurred. In several households secondary cases were infected by the above, and in one instance an apparently healthy girl carried infection home.

B. N. above, was not recognized as Diphtheria. She had had Diphtheria in 1895, for which tracheotomy was required. There were three other children, sisters of the above, aged 11, 6 and $\frac{5}{12}$, from whom swabs were obtained on November 4th and 8th, and all shewed Diphtheria bacilli, although the children were only slightly ill and could not be recognized as Diphtheria. A still further development arose out of B. N.'s case. It was this further case (N. W.) which led to the detection of the four atypical cases of Diphtheria in B. N.'s house. B. N. when not at school acted as nursemaid to N. W., æt $1\frac{3}{4}$ years. On Sunday, October 26th, she spent the whole day at N. W.'s house. N. W. failed with Diphtheria on Wednesday, 29th October.

During the course of this school outbreak, M. W., a girl aged 11, was attending St. III. She sat next M. M. in the above list, who attended school for several days while suffering from unrecognized Diphtheria. On 23rd October a young man lodger at M. W.'s home failed with Diphtheria. He only arrived in Brighton on the 16th October, and had lodged since his arrival in this house with five other young men, who only had one meal in the house, viz., breakfast brought up to the bedroom. This was brought up by M. W. and by her older sister. None of the other lodgers had Diphtheria, and of the large family to which M. W. belonged (father and mother and 8 children varying in age from 2 months to 12 years) all remained apparently well.

During and preceding the outbreak of Diphtheria in Middle Street Girl's School, cases occurred in the Infants' and Boys' Departments, as follows :—

	Onset.	School.	Class.	
H. I., æt 6	Oct. 3	Middle St. Infants	Cl. I.	Last at School October 3
D. J , æt 4	Oct. 28	do.	Babies	,, ,, ,, 28
M. T., æt $3\frac{1}{2}$ ...	Oct. 30	do.	do.	,, ,, ,, 29
J. R., æt 6	Nov. 5	do.	Cl. III.	,, ,, Nov. 5
R. N., æt 12 ...	Oct. 14	Middle St. Boys	St. IV.	,, ,, October 14
B. I., æt 11... ...	Oct. 16	do.	St. V.	,, ,, ,, 16
I. N., æt 12... ...	Oct. 16	do.	St. IV.	,, ,, ,, 16
E. H., æt 10 ...	Oct. 23	do.	St III.	,, ,, ,, 23
A. B., æt 9	Oct. 23	do.	St. VI.	,, ,, ,, 23
F. O., æt 9	Oct. 31	do.	St. III.	,, ,, ,, 29

A comparison of the above dates in different departments indicates the existence of cross-infection and the absolute necessity in this disease for keeping from school all children belonging to infected or suspected families. The great difficulty obviously is to discover. at an early stage, the cases of Diphtheria in which no doctor is called in, or even if a doctor is called in to be certain, without a bacterioscopic examination, that a case is not Diphtheria. Such an examination frequently discovers cases which would otherwise have been overlooked; though a negative bacteriological result does not guarantee the absence of infection.

The story of the outbreak at Annunciation Infants' School teaches the same lesson. Two children belonging to this school must have had unrecognized Diphtheria during the summer holiday, as one was found to have Diphtheria bacilli in the throat on the 9th September, and the other on the 18th, the school having reopened on September 1st.

	Onset.	School.	Class.	
W. N., æt. 4½ ...	During August	Annunciation Infants	Cl. III.	Attended school 1st to 8th Sept. Diphtheria bacilli found Sept. 9th.
G. T., æt. 5... ...	do.	do.	Cl. II.	Attended school Sept. 1st to 17th. On the latter date was found to have nasal discharge and Diphtheria detected.
W. C., æt. 4 ...	Sept. 5...	do.	Cl. III.	Last attended school Sept. 4th.
F. D., æt. 5... ...	Doubtful	do.	Cl. II.	Attended as outpatient at a hospital Sept. 22nd, 25th, and Oct. 2nd. Swab taken at my request Oct. 4th and found positive (pure culture of Diphtheria bacilli). Attended school until Sept. 30th.
F. O., æt. 4.. ...	Sept. 29	do.	Cl. III.	Last at school Sept. 28th.
M. N., æt. 4 ...	Sept. 30	do.	Cl. II.	Last at school Sept. 29th.
F. V., æt. 3... ...	Doubtful	do.	Babies	Attended school until Oct. 3rd. Diphtheria bacilli found Oct. 6th. No clinical evidence of Diphtheria. Examined because of another child in the same house having clinical Diphtheria.
I. I., æt. 4	Doubtful	do.	Babies	Last at school Oct. 8th. No clinical evidence of Diphtheria, but Diphtheria bacilli found.
E. S., æt. 5	Oct. 21...	do.	Cl. III.	Last at school Oct. 21st.

In four of the previous cases, secondary cases, all among younger children, occurred in the same families.

Class III. and the babies' room in the above school are only separated by a wooden partition. Class II. is in a separate building. The school was thoroughly cleansed and disinfected on Saturday, September 13th. The number of children on the roll in the Infants' School was 220.

Preventive Measures against Diphtheria.—These comprise (1) notification of cases, (2) the usual measures of isolation and disinfection, (3) the examination of suspected contacts by means of throat swabs, (4) the occasional use of antitoxin as a prophylactic. Under each of these heads there is a possibility of partial failure, owing to the subtle nature of the disease and the difficulty of recognizing it in atypical cases. I propose to give particulars under each of the above heads. In such a record, instances in which preventive measures failed are necessarily more prominent than the vast majority of instances in which they succeeded. The former are capable of exact record and are here recorded for future instruction; the latter elude numerical statement.

(1) *Notification of Cases: Missed Cases.*—The history of the following cases illustrates how slight cases of Diphtheria are overlooked, and are only detected

when the occurrence of more marked cases infected by them enables us to institute inquiries.

Second instance.—D. R., aged 10, was notified to me on August 23rd as a case of "paralysis after diphtheria six weeks ago." The history obtained was that about July 18th he had a stuffy nose and sore throat. No doctor saw him until August 23rd. The parents and two boys, aged 13 and 15 respectively, living in the same house, remained well.

On July 25th, D. R. came into contact with D. F., aged 2 years, a neighbour's child and nephew to D. R.; D. F. failed with diphtheria on July 26th. On August 2nd, a man, aged 31, failed in the same house; N. F., aged 3, on August 6th; and a cousin, H. C., aged 2, on August 9. There was free communication between these families.

When, in consequence of the cases in the second house, enquiries were made from the mother of D. R., she denied any illness, and the source of the subsequent cases remained undetected until D. R. was notified owing to the occurrence of paralysis after diphtheria.

Third instance.—On August 31st, O. U., aged 4, was notified to be suffering from Diphtheria, and was removed to the Sanatorium on the same day. The patient, three other children aged $\frac{7}{12}$, 2 and 6 years, respectively, and the mother and father all lived in one room. In another family in the same house were the father and mother and five children aged 1 to 12 years. These, with the exception given below, remained well. On making enquiries into this case it was found

P. H., aged 2, the brother of the above patient, had a cough since August

prevent any further cases. Usually, from one to four days elapse before the removal of the patient can be secured, often longer, consequently much mischief is done before isolation begins. During 1902, when only single cases occurred in each house, the attack rate was 29·1 per cent. among exposed persons under 20 in hospital-treated, as compared with 37·2 per cent. in home-treated cases. When multiple cases occurred in the same house, the attack rate among persons under 20 years of age was 52 per cent. for home-treated cases. For hospital-treated cases it was as follows :—(*a*) when the first case was removed before the onset of the second, 34·5 per cent. ; (*b*) when the first case was not removed before the onset of the second, 47·9 per cent. ; (*c*) when the two cases had a simultaneous onset, 37 per cent.

These percentages do not represent the potential value of hospital isolation. They give, however, more favourable results than can be obtained from home-isolation in this disease, notwithstanding failures of diagnosis and notification.

Of the 327 hospital-treated cases, 25 or 7·7 per cent., of the 106 home-treated cases, 12 or 11·3 per cent. proved fatal.

(3) *Bacteriological Aids to the Prevention of Diphtheria.*—This aid to diagnosis has been used to a larger extent in 1902 than in any previous year.

217 swabs were taken from patients at their home or at the Town Hall by my assistants or myself, as compared with 141 during 1901, although the total amount of diphtheria had greatly declined. This has been a most valuable means of detecting slight and previously undiscovered cases of diphtheria or "carrier cases" in families from which children have been moved to hospital. Were it not for the fact that only positive results can be trusted—negative results merely indicating failure to find evidence of diphtheria, which may, nevertheless, be present—this would have been even more effective in stopping outbreaks of diphtheria.

(4) *Use of Diphtheria Antitoxin as a Prophylactic.*—During 1902, prophylactic doses of antitoxin were given to 27 children who had been closely exposed to infection, a fee of 2s. 6d. being paid to the doctor for each patient. None of these developed Diphtheria. These doses were given in the early part of the year. The question has arisen in my mind whether in certain instances the prophylactic use of antitoxin may not have prevented the full development of Diphtheria, while not preventing the patient thus treated from being a carrier of infection. To test this point a more general examination of swabs from all such children would be necessary than has been practicable with our limited staff. The following case, coming over from the preceding year, is of interest as bearing on the same problem.

> C. W., aged 4, of No. 26 L. Street, failed with Diphtheria on January 11th. Her brother, aged 19, failed with Diphtheria on November 25th of the preceding year, was notified on December 18th and removed to the Sanatorium, and had not returned home when C. W. failed. There were in the same family the father and mother, boys aged 12, 8, 6 and 1½, and a girl aged 10, who have remained well. Each of these children, including C. W., had a prophylactic dose of antitoxin (500 units) on December 20th. C. W. remained well until January 11th. When admitted to the Sanatorium on the 14th, she had a faded Measles rash as well as Diphtheria. In this case the intercurrent attack of Measles appears to have cansed an unusually early loss of the immunity produced by antitoxin. Whether before the attack of Measles she had been harbouring the bacilli of Diphtheria, or received the diphtheritic infection at a later date from a "missed" case, is open to question.

In connection with the subject of isolation, the possibility of patients released from home or hospital isolation conveying infection to those coming into contact with them requires consideration.

Protracted Infection.—In one case which has come under my observation during 1902, infection has been proved to exist at the end of 110 days, and the following are less extreme instances of protracted duration of infection. In some of these instances, Diphtheria bacilli could not be detected when the patients were released from isolation, but re-appeared later. It is clear therefore that negative results from "swabs" must be discounted. If repeated they are in most instances trustworthy, occasionally not. Although this fact constitutes a drawback to bacteriological aids to diagnosis, we are with them much better armed to cope with Diphtheria than before such aids were available.

"*Return*" *Cases of Diphtheria.*

(A) *Hospital Treated Cases.*—(1) F. D., aged 2½, of No. 25 U. Street, failed with Diphtheria on April 6th, was admitted to the Hospital on the 19th and left on the 28th. On admission she had some exudate on the tonsils and was rather croupy. She recovered rapidly, and on the 26th and 27th April, two consecutive negative swabs were obtained. She lived with her father, grandparents and a brother aged 1 year, who have remained free from Diphtheria. Her brother, when seen on May 16th, had Whooping Cough, but a nasal swab from him gave a negative result so far as Diphtheria was concerned. The same result was obtained on the same day from F. D.'s throat, except that one suspicious group of faintly stained bacilli were found. The Neisser test gave a negative result.

Next door to the above patient lives L. K., aged 4. She failed with Diphtheria on May 11th, thirteen days after F. D. left the Hospital. L. K.'s family consists of father, mother and sisters aged 10, 7, 3 and $\frac{7}{12}$ respectively. L. K. attended the Babies' Class at a Board School, but no cases of Diphtheria have occurred in this Class. She moved with her family, on April 30th, to No. 8 H. Street, but returned to 24 U. Street on May 9th, because they found the house to which they had moved was dirty. On May 9th, L. K., kept indoors, but on the 10th she and F. D. appear to have played together in the street. No history of sore throat could be obtained at No. 8 H. Street, but one child had had Whooping Cough among the tenants temporarily displaced by the family of L. K. The above details leave it doubtful whether this was a "return" case or not.

(2) H. M., aged 8, failed with Diphtheria on November 1st, and was admitted to the Hospital on the 5th. M. M., sister of the above, aged 13, failed with Diphtheria on November 6th, and was admitted on the 8th. M. M. was sent home on Friday, December 12th. On the evening of December 11th, F. M., aged 18, left the shop in which she worked, complaining of headache. On the 12th, she had indigestion and headache. On Sunday, the 14th, she had slight sore throat. She went to work on the 15th, but her throat was worse on that evening. She was seen by a doctor on the 16th who found no evidence of Diphtheria, but a swab shewed Diphtheria bacilli. She states that she kissed her sister on the cheek on the 12th, when the latter returned home. A negative swab was obtained from this sister on December 18th, and from the father on the same day, but the mother, who looked pale and ill, gave a doubtful swab.

I am unable to say whether F. M. brought the infection home, notwithstand- the two negative swabs obtained before her discharge, or whether some infection had clung about the house.

(B) *Home-treated Cases.*—(4) W. P., aged 10, failed with Diphtheria on November 6th, a positive swab being obtained on November 11th. He was nursed at home. The doctor attending him sent a swab for examination on November 26th, in which Diptheria bacilli were not found. Our advice on such single negative results is contained in the following extract from a footnote in each certificate giving bacteriological results :—

W. P. was allowed to go into the street on November 29th, and there he met and talked with B. I., aged 7, and his two brothers. B. I. failed with Diphtheria on December 1st. No other source of infection could be discovered. By my request W. P.'s doctor now sent a further swab from his patient, in which Diphtheria bacilli were again found, and the isolation of the boy was resumed.

(5). The following is a somewhat similar case to the last. I. N., aged 11, failed with Diphtheria on October 16th, and was nursed at home. One negative swab was obtained on November 14th. The infected rooms were disinfected on November 21st, and the patient was allowed to mix with other people. In the same house was a brother, B. N., who was there during the whole course of the above patient's illness, but isolation was kept up until November 21st.

B. N. failed with Diphtheria on December 23rd. Another brother, aged 12, who came home from London on December 17th remained well. I. N., when examined on December 30th, did not shew the presence of Diphtheria bacilli.

MEASLES AND WHOOPING COUGH.

The death-rate per 1,000 living from each of these diseases for a series of years is shewn in the following table :—

Year.	Number of deaths per 100,000 of population.	
	Measles.	Whooping Cough.
1892	100	19
1893	12	47
1894	30	12
1895	20	34
1896	46	27
1397	14	21
1898	67	18
1899	1	16
1900	43	28
1901	10	21
1902	24	23

There is no notification of Measles and Whooping Cough except from school teachers, who supply a large amount of valuable information as to these two diseases. The following table gives the ages of cases of each of these diseases notified to us, including cases (*a*) where the first case in the infected house attended school, and (*b*) where the first case did not attend school.

1-2	17	4	31	25
2-3	13	5	51	16
3-4	29	9	79	18
4-5	41	4	96	14
5-6	39	1	80	4
6-7	22	1	43	4
7-8	12	—	24	—
8-9	2	—	16	1
9-10	1	—	12	—
10-15	—	—	17	1
Over 15	—	—	—	1
	191	34	472	92
	225		564	

Of 357 houses in which cases of Measles were notified in 1902, there was one case in 195 houses, two cases in 100 houses, three cases in 40 houses, four cases in 11 houses, and five in one house. An unknown proportion of the Measles cases were cases of Rötheln (German Measles).

Of 123 houses in which cases of Whooping Cough were notified, there was one case in 59 houses, there were two cases in 37 houses, three cases in 19 houses, four in 5 houses, and five in three houses.

No schools were closed during the year on account of either Measles or Whooping Cough.

ENTERIC OR TYPHOID FEVER.

The incidence of Enteric Fever, since notification came into operation, is shewn in the following table :—

	Number of cases per 100,000 of population.	Number of deaths per 100,000 of population.	Case-mortality Number of deaths per 100 cases notified.
1892	54	7	12·7
1893	65	13	19·5
1894	69	9	13·0
1895	72	12	16·6
1896	101	12	11·2
1897	94	17	18·1
1898	105	15	14·3
1899	148	20	13·7
1900	67	10	14·4
1901	37	5	13·0
1902	52	11	21·5

Cases caused by shell fish.—The total number of cases notified as Enteric Fever in the year was 65, as compared with 46 in 1901, 83 in 1900, and 182 in 1899. Of the 65 cases, 14 died. In 11 cases notified as Enteric Fever the subsequent course of the disease shewed that they were not really this disease. Twelve other cases occurred among visitors, and the infection was brought into the town by them.

Of the remaining 42 cases of indigenous origin, eleven were caused by oysters, six and three secondary to these, were caused by mussels, and one was caused by whelks, with one case secondary to it (by personal infection).

In one other case there was strong reason for believing that the handling of shell fish, and in another case the handling of live bait, derived from a sewage-polluted estuary, were the cause of the attacks of Enteric Fever.

It will be seen, therefore, that including secondary cases 24 out of our 42 cases of local origin were caused by contaminated oysters and other shell fish or by other matter derived from a sewage-polluted estuary.

I am informed by the occupiers of the shops concerned in the sale of the oysters causing the above 11 cases that their supplies of oysters were obtained from the following sources :—

Southwick	in 5 cases
Southwick and Emsworth	in 2 ,,
Emsworth	in 1 ,,
Emsworth and Whitstable	in 1 ,,
Grimsby	in 1 ,,
Whitstable and Pyefleet	in 1 ,,

On page 38 are given examples of the histories which were obtained in the cases of Enteric Fever in which the illness was ascribed to the consumption of oysters or mussels. The evidence is of the same character as that given in my annual reports since 1894. In is purely circumstantial and can only be regarded as conclusive by those who, like myself, have felt the steadily increasing weight of conviction produced by the steady flow of cases for which no cause can, after diligent search, be detected other than the previous consumption of shell fish.

Nature of Evidence.—1. The evidence would be more conclusive if all the persons eating the contaminated shell fish were taken ill. We are able to satisfy the condition that no others in the implicated houses (except in a few instances those secondarily infected by the first patients) are attacked, except those having eaten the shell fish; but, as shewn in the following examples, some persons eating shell fish escape. This is not surprising; for (*a*) when the source of infection is contaminated milk, in which the contagion would be more uniformly disseminated than in oysters, usually only 10 to 15 per cent. of those drinking the milk are attacked. (*b*) It can scarcely be expected that every oyster or mussel has swallowed the specific Typhoid bacillus. One might, therefore, anticipate that only a small proportion of those eating oysters would become ill.

2. The evidence would be more conclusive if one could shew that the proportion of Enteric Fever was greater among oyster eaters than among non-oyster eaters. Unfortunately there is no census of these two groups, and an estimate of their magnitude would be a mere guess. Short of this, one must fall back on the consideration of occupations of patients. In a paper read some years ago,* I drew attention to the preponderance of Enteric Fever among such occupations as publicans, commercial travellers, fishmongers, caterers, restaurant keepers, waiters, &c. ; and this rule still holds good.

3. The evidence is strengthened by our knowledge that the oysters to which illness is chiefly ascribed are derived from Southwick, on the condition of whose oyster layings I have repeatedly reported, and further particulars concerning which are given on page 40. We know also that cases of Enteric Fever occur in Southwick, Portslade, Shoreham, &c., and that the sewage from a portion of these patients still continues to discharge into Shoreham Harbour and pollute the oyster layings and market ponds on its eastern as well as the mussel beds on its western branch.

4. In 1896 Dr. Klein reported to the Brighton Town Council that water taken from close to the Southwick oysters shewed "distinct evidence of being polluted with sewage to a considerable degree"; and this evidence has recently been repeated and accentuated (page 42).

5. It is well recognized that Enteric Fever in this country is spread chiefly by means of food, including under this head milk, water and other foods. Outbreaks caused by milk and water, when they occur, are, in the nature of things, of wider extent than outbreaks caused by oysters, which are eaten raw, or by mussels and cockles which are eaten raw or not sufficiently cooked to kill the typhoid bacillus. In all these instances it is uncooked, or only partially-cooked food which is responsible for the mischief.

6. Occasionally the evidence in favour of the contention that sewage-polluted shell-fish cause the disease ascribed in my report to them is confirmed by the occurrence of groups of cases.

The following cases are taken as examples. In each of these, infection by water or by milk, or from previous cases, was definitely excluded, although, to shorten the accounts, these details are omitted. There was no epidemic of Enteric Fever in the town during the year. The cases of Enteric Fever which now occur in Brighton are entirely sporadic ; and were the source of infection now under consideration to be removed, the amount of this disease would, I believe, be diminished to a much greater extent than is represented by the proportion of the total cases that can be definitely traced to this source.

Oyster Cases.—(1) Man aged 36, sergeant, failed with Enteric Fever 21st December, 1901. Each Saturday he and his wife ate oysters derived from Southwick. His wife has escaped. No known contact with other sources of infection.

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* The spread of Enteric Fever by means of Sewage-Contaminated Shell Fish (Vol. xvi Part III., 1896, of the Journal of the Sanitary Institute).

(2) Man aged 33, professional, on September 11th took 6 "deep sea" oysters at 1.30 p.m. At 6 p.m. had diarrhœa which continued until the evening of the 12th. Between the 12th and 19th was feeling languid and tired. He took to bed on the 24th, and had a severe attack of Enteric Fever, followed by a relapse. The four others living in the same house, which was in good sanitary condition, remained well. The oysters were derived from Southwick.

(3) Mrs. X., aged 23, failed with Enteric Fever on 13th October. The patient's mother sent her oysters at intervals, the last occasion being October 6th. None of the remaining three occupants of the same house ate oysters. All have remained well. The oysters were obtained from a shop-keeper who buys partly from Whitstable and partly from Southwick.

(4) Mrs. Y., aged 38, failed with Enteric Fever about 19th October. She and her husband ate oysters at a shop, deriving its entire supply from Southwick, on the 11th October. The husband and five other occupants of the same house remained well.

(5) Mrs. T., aged 63, failed with Enteric Fever on October 22nd. She came to the house in which she failed on the 16th September. On the 5th October she ate her share of two dozen oysters which had been bought at a shop deriving its oysters solely from Whitstable and Pyefleet. The oysters were also partaken of by three other adults, who remained well. No other cases of Enteric Fever had occurred in this house or district, or in connection with the same milk supply.

(6) Man aged 40, detective, failed with Enteric Fever December 1. On or about the 17th November he ate six oysters at a shop obtaining its oysters from Emsworth and from Whitstable. Contact with other sources of infection could not be detected.

(7) Man, aged 23, bus-conductor, failed with Enteric Fever December 10th. Has eaten oysters for supper recently on three occassions, last December 9th, first 17th November. The oysters were always bought from a particular hawker. The patient ate about 12-16 on each occasion; the other members of the family (four adults) each eating about six. These have remained well. The oysters were derived from Southwick, and bought at about 8d. a dozen, because they were not saleable in shops owing to "the shells not being properly formed."

Mussel Cases.—(1) Man aged 46, Corporation labourer, failed with Enteric Fever 15th May. Very fond of mussels, and bought them every Friday night. On the 9th May he ate some mussels raw, some scalded. No other member of his family ate them on this or any other occasion (wife and two sons). No other cases of Enteric Fever in the same district.

(2) Mrs. A., aged 25, on or about the 29th September bought half-a-gallon of mussels, which were eaten by her husband and herself. On 1st October she miscarried, and about the 10th developed symptoms of Enteric Fever, which proved to be too severe to admit of her removal to hospital. The husband and four other adults living in the same house remained well.

(3) Towards the end of March over half-a-gallon of mussels were bought by a family consisting of the following members :—

Father	... Ate a fair number of mussels.
Mother	... Ate none.
Boy, aged 14	Ate a fair number of mussels.
Boy, aged 21	
Girl, aged 12	These two ate the remaining mussels which were left over from the previous night's meal, *i.e.*, about a tea-cup-full without the shells.
Boy, aged 16	

All remained well except the girl, aged 12, who failed with Enteric Fever about 13th April, and the boy aged 16, who failed with the same disease about the 25th April. Whether he was infected from his sister, whose attack was not recognized for some time, or from the mussels (with a rather long incubation period), is doubtful.

The Condition of Shoreham Harbour.—Most of our cases of Enteric Fever, traceable to contaminated shell-fish, have been caused by oysters or mussels from Shoreham Harbour, though oysters from other places, particularly Emsworth, have been responsible for a few cases. The condition of Shoreham Harbour is a subject in which therefore Brighton is deeply interested. I append the following facts as to its condition :—

The river Adur has two branches, an eastern and a western. The eastern branch ends in a *cul-de-sac* at Aldrington Basin ; along the western branch flows the river Adur, past Bramber and Shoreham, to the sea. The two branches join together opposite Kingston-by-Sea, near the mouth of the harbour. The Southwick oyster layings are in what is known as the south channel, between the eastern arm of the river and the sea. The oyster beds (market ponds), where oysters are temporarily deposited before being removed for sale, are below the wharves at Southwick, and near the junction of the eastern and western arms of the river. Hence, even if it be assumed that none of the sewage of Kingston, Southwick and Portslade now escapes into the harbour, these ponds and, to a less extent, the oyster layings in the south channel are still exposed to any sewage which may pass over the Shoreham (western) branch of the river to the sea. When the harbour is tide-locked it is plain that any sewage coming from Shoreham and from higher parts of the river must be held up and flow back up the eastern branch of the river, and that when the tide ebbs some of this will be deposited in the oyster beds and oyster layings at Southwick. It becomes, therefore, a matter of the utmost importance, so far as the fitness of oysters from Southwick for human food is concerned, to ascertain whether sewage finds its way into the river from Shoreham, &c. The importance of this point is increased by the fact that a very large proportion of the mussels sold in Brighton are gathered from the bed of the river Adur, between the outfall of the Shoreham town sewer and the mouth of the Shoreham Harbour. Others are gathered in or near Newhaven Harbour, which is grossly contaminated by sewage. Taking the returns of the last three years, 29 cases of Enteric Fever in Brighton have been traced to oysters, and 18 to mussels and other molluscs. Clearly, therefore, other shellfish are only less important than oysters, so far as the prevention of Enteric Fever is concerned, and the absence of any provision as to other shellfish than oysters was an unfortunate omission from the Government Oyster Bill of 1899.

Report of Inspection of Shoreham Sewage Outfall Works.—In September, 1900, I had an opportunity of inspecting the outfall works of the Shoreham Urban District. The sewage of this town (population New Shoreham at 1901 census 3,837) passes through vertical coke filters arranged in pairs. These filters consist of two perforated iron plates between which is a layer of coarse coke. When one of these filters was brought up above the ground level, daylight could be seen through the apertures of the iron framework, and it was obvious that such an arrangement would not completely hold back even coarse sewage matter.

A pailful of the sewage which had passed through these filters was obtained. It contained a large proportion of solid matter. One piece of coal in it measured 1¼ inch by ½ inch. The following other solid matters were found among the grit :—plum stones, cherry stones, grape stones, apple pips, fibres of bass brooms, vegetable débris, and pieces of newspaper on which the printed matter was still legible.

I only lay stress on these facts because they prove that at the time of this inspection, very coarse solid matter from the Shoreham sewers was finding its way into the river. There has, so far as I know, been no radical change in the system of filtration since the above date; and even if improvements had been effected I do not know of any system of filtration practicable for sewage which would completely free it from the germs of infectious diseases. The only procedure which can render any part of the tidal portion of the river Adur a fit place for growing oysters and mussels for human food is to carry the sewage of all towns, villages, and houses on its banks a considerable distance out to sea. Meanwhile, the only safe plan for the public is entirely to refuse to purchase or eat shell fish derived from this harbour. It is important that every person living in or near Brighton should be made to realise this important fact. Nor should the public allow themselves to be misled into disregarding this rule, because in May, 1901, an intercepting sewer for Portslade and Southwick was opened, which conveys the sewage of these two districts out to sea. I take the following particulars of this scheme from Dr. Kelly's Annual Reports for West Sussex.

Portslade and Southwick Outfall Sewage.—The system comprises a total length of six miles of sewers. Plans for combined drainage (*i.e.*, for rainfall as well as for sewage) are only approved on condition that an inspection chamber is properly constructed within the boundary of its own property. The majority of houses are drained on what is called the "separate system." This implies that rain and storm water is disposed of otherwise than by the main intercepting sewer, and presumably finds its way into the harbour. Such storm water is frequently extremely foul, as it carries with it the scourings from back yards, courts, passages and streets; and oysters which are eaten uncooked can never be a safe food after having been exposed to such contamination.

Collateral Evidence as to Sewage-Polluted Condition of Oysters from Southwick.—On January 12th, 1903, I received the following letter, which is inserted here in order to complete my review of this subject.

"Fishmongers' Hall,
"London, E.C.,
"January 12th, 1903.

"Dr. Newsholme,
"11 Gloucester Place, Brighton.

"Dear Sir,—

"*Southwick Oysters—Caen Bays.*

"Professor Klein has made a preliminary report upon his examination of these oysters as follows:—

"From Southwick Pit, received January 10th. Brazier beds. About 35 per cent. polluted.

"Southwick beds received on 10th January. About 12 per cent. polluted.

"He adds a memorandum that the figures given as to pollution are at present only approximate, but they will not be lower, possibly higher, when the enquiry is further advanced.

"Under these circumstances I have informed Brazier Brothers that the Fishmongers' Company cannot allow these oysters to be sold in London.

"Yours faithfully,
(Signed) "J. Wrench Towse."

The Council, having considered this letter and the following reports from the Town Clerk and myself on February 19th, 1903, passed a draft Bye-Law prohibiting the sale or exposure for sale in the Brighton Fish Market of oysters or other shellfish known to have come from a sewage-contaminated source.

"*County Borough of Brighton.*

"Bye-law made by the Mayor, Aldermen and Burgesses of the County Borough of Brighton, for the Prevention of the Sale of Unwholesome Shell Fish in the Borough Fish Market.

"1.—A person resorting to the Market Place on the Beach above high water mark for the sale of fish shall not sell or expose for sale or cause to be sold or exposed for sale in the said Market Place any oysters or other mollusca which have been obtained from any pond, laying pit, estuary, river or other place polluted or contaminated with sewage.

"2.—Every person who shall offend against the foregoing Bye-law shall be liable to a penalty of Five pounds. Provided, nevertheless, that the Justices or Court before whom any complaint may be made or proceedings may be taken in respect of any such offence, may, if they think fit, adjudge the payment as a penalty of any sum less than the full amount of the penalty imposed by this Bye-law.

"Given under the Common Seal of the said County Borough this
day of 1903.

This bye-law has been submitted to the Local Government Board for approval, and is under their consideration.

The following are the reports mentioned above :—

"To the Sanitary Committee.

"GENTLEMEN,—With reference to the report of the Medical Officer of Health of the 15th January last as to further preventive measures in respect of the sale in Brighton of sewage-contaminated oysters and other shell fish, I beg to remind the Committee as to the steps which have already been taken by the Council to deal with this evil.

"In 1894, a deputation from the Committee had an interview with the representatives of the Local Government Board, and urged upon the Board the desirability of their obtaining statutory authority for and making regulations restraining the sale of sewage-contaminated shell fish. The Parliamentary Secretary of the Local Government Board did not hold out any hope of anything being done in this direction, though he admitted that the Medical Department of the Board had evidence of mischief due to shell fish.

"As they were satisfied that they had no means of dealing with the evil under the existing law, the Council included in their Bill of 1896 a power to prevent the sale within the Borough of shell fish known to come from sewage-contaminated sources, in cases where the Medical Officer of Health was of opinion that infectious disease was caused, or likely to be caused, by the consumption of such shell fish.

"The clause was objected to by the Board of Trade on the ground that the powers, if granted, should be the subject of a public Act, and, after a hearing extending over two days, the Parliamentary Committee refused to grant the powers.

"In 1897, the Council adopted a memorial to the Local Government Board praying for public legislation dealing with this question, and this memorial was also sealed by 27 of the 33 great towns and by the London Port Sanitary Authority, and the London County Council also passed a resolution supporting the proposal.

"On the 30th March, 1898, the President of the Local Government Board received a deputation of the memorialists and gave them an assurance that legislation in the desired direction would be proposed.

"In 1899, the Oysters Bill was introduced by the Local Government Board, and the Medical Officer of Health and myself gave evidence in support of it before the Lords Committee. The Committee, however, amended the Bill by substituting the Local Fisheries Committees for the Local Sanitary Authorities as the authority for administering the provisions of the Bill, and the Local Government Board thereupon withdrew the Bill.

"In August, 1899, the Council caused public notices to be published throughout the Borough, containing the following warning :—

"'*County Borough of Brighton.*

"'The public are warned against eating oysters, mussels and cockles derived from sewage-polluted sources. Serious illness is frequently caused by neglect of this precaution.

(Signed) "'ARTHUR NEWSHOLME,
"'Medical Officer of Health.'

"The publication of these notices undoubtedly had a good effect, as it appears that from this date there was a decided diminution in the number of cases of Typhoid Fever occurring in the Borough.

"In 1900, the Council forwarded to the Local Government Board a resolution urging the Board to introduce a Bill for the prevention of the sale of shell fish derived from sewage-polluted sources, and, at their request, a similar resolution was adopted by the majority of the great towns which had sealed the memorial of 1897, but no fresh legislation has been introduced.

"The recent outbreaks of Typhoid Fever due to oysters, and the result of the investigations published within the last few weeks by the City of London Sanitary Authority, have shown how urgent is the need for legislation of the description above-mentioned, and in view of the strong public feeling which now exists with reference to the danger to health arising from this cause, it is probable that a renewed representation to the Local Government Board would result in the introduction of legislation for the protection of the public health from this source of danger.

"I therefore recommend the Council to pass a resolution urging the Local Government Board to introduce such a measure into the next Session of Parliament.

"I also recommend that a copy of this report, and of the resolution of the Council, accompanied by a copy of the annexed memorandum prepared by the Medical Officer of Health, be sent to the President of the Local Government Board, to the Borough Members, and the Council of every municipality in England, and that such Councils be asked to adopt and forward to the Local Government Board a resolution in similar terms.

"I am, Gentlemen,
"Your obedient Servant,
(Signed) "F. J. TILLSTONE,
"Town Clerk.

"Town Hall,
"Brighton,
"11th February, 1903."

Memorandum by Medical Officer of Health on the subject of Enteric Fever from Sewage-polluted Shell Fish.

"All cases of Enteric Fever of local origin occurring in Brighton have, since Midsummer, 1893, been specially investigated in relation to the previous consumption of shell fish by the patients.

"Between Midsummer, 1893, and the end of 1902, 630 cases of Enteric Fever of indigenous origin were notified. In 226 of these cases, no source of infection could be discovered except that the patient had, at a time which corresponded with the incubation period of Enteric Fever, partaken of shell fish known to have been derived from sewage-polluted estuaries. In a large number of other cases no history as to whether or not the patient had eaten shell fish could be obtained. Of those who, in my opinion, had been infected by means of shell fish, 152 cases were caused by eating oysters, 69 cases were caused by other shell fish, chiefly mussels, and in 5 cases the infection had probably been acquired in connection with the storing or handling of shell fish. The evidence connecting these shell fish with the origin of the above cases of Enteric Fever has been repeatedly discussed in my reports to the Sanitary Committee. It is circumstantial, but the accumulating experience of the last nine years has satisfied me that when it is stated that 226 out of 630, or 36 per cent. of the cases of Enteric Fever of local origin in Brighton, are caused by sewage-polluted shell fish, the extent of this evil is understated rather than overstated.

"We have in the past repeatedly endeavoured to obtain a remedy for this evil. Among other efforts have been our own attempts at legislation (Corporation Bill of 1896) and the Government's Oysters Bill of 1899. A combination of the provisions contained in those two measures would, in my opinion, best meet the necessities of the case. The Government Bill did not extend to mussels and cockles. Shell fish, like mussels and cockles, which are not laid down in special beds, but may be gathered in various parts of the bed of an estuary, could not be controlled by its means. It is essential, in my opinion, that not only should Sanitary Authorities have control over oyster-layings situate in their districts, but also that they should be able to prevent the sale of oysters and other molluscs derived from sewage-contaminated sources, or when they are able to show that these shell fish have caused cases of Enteric Fever or other serious illness.

The Council, at their meeting on 19th February, passed the following resolution :—

"Resolved—That in the opinion of this Council it is urgently necessary, in the interest of the public health, that legislation should be enacted by Parliament for the protection of the public against the danger to health arising from the consumption of oysters and other shell fish derived from sewage-polluted sources, and that the President of the Local Government Board be respectfully requested to introduce such a measure into the next Session of Parliament.

Cases of Enteric Fever from other sources than shell fish.—Of the 18 remaining patients from whom no history of eating shell fish could be obtained, four died and could not be questioned, and the families had left or were inaccessible. Three other cases were due to *personal infection* from previous cases. Of these, one was infected by a patient who had recently been discharged from an infirmary outside Brighton after an attack of Enteric Fever. Two other patients (mother and child) were infected, while a girl, aged seven, was being nursed at home with Enteric Fever, the source of which could not be definitely traced.

The causes of the remaining 11 cases could not be definitely ascertained, though every effort was made to do so.

Case I.—Butcher's Assistant, aged 47. Drain defective under the house.

Case II.—Girl, aged 9, lives in a house re-drained two or three years ago, with her father and mother, two sisters and one brother, who have remained well. The father is a shrimp catcher.

Case III.—Boy aged 14, failed July 14th, probably infected from his brother aged five, who was very ill for several weeks and delirious about the end of June, but was never recognized as Enteric Fever. This younger brother was in the habit of playing truant, and frequently ate specked fruit, after which he had occasionally vomited.

Case IV.—Boy, aged 14, ceased attending School 18th July, and during the next week was playing in various places. His movements could not be traced. He failed with Enteric Fever on the 9th August.

Case V.—Man, aged 33, master butcher, died; no history obtainable.

Case VI.—Man, aged 24, was married on 28th July and failed with Enteric Fever about September 7th. A short time before his marriage had a severe attack of diarrhœa following the eating of winkles. Possibly this was a slight attack of Enteric Fever and the attack after marriage a relapse.

Case VII.—A boy, aged 7, failed 19th September, and probably acquired the infection during his holiday.

Case VIII.—A man, aged 41, is a carman, and engaged in getting orders for his employers. In this capacity is constantly engaged in calling at public-houses and treating customers.

Case IX.—Woman, aged 33, wife of a water-cress seller, was treated at home. Three successive negative Widal reactions from this patient.

Case X.—Woman, aged 37, no history obtainable.

Case XI.—Man, aged 35, had been helping to nurse his daughter who had suffered from "Pneumonia."

DIARRHŒA.

During 1902, 49 deaths returned under headings which gave reasonable ground for believing them to be due to Epidemic Diarrhœa were certified, as follows :—

	Under One Year of Age.				Years.			
	Under 3 mths	3-6 mths.	6-9 mths.	9-12 mths.	1-2	2-3	3-5	Over 5
Diarrhœa	4	5	4	3	2	1	—	5
Epidemic Diarrhœa	1	3	3	3	1	—	—	—
Infantile Diarrhœa	1	—	—	—	—	—	—	—
Zymotic Enteritis	1	2	—	1	—	—	—	—
Epidemic Enteritis	—	1	1	1	—	1	1	—
Gastro-Intestinal Catarrh ...	1	1	—	—	—	—	—	—
Infantile Cholera...	—	—	1	—	—	—	—	—
Cholera Nostras	—	—	—	—	—	—	—	1
Total	8	12	9	8	3	2	1	6
Enteritis and Gastro-Enteritis...	3	3	4	5	1	1	—	3

Owing to recent changes in nomenclature, some difficulty arises in giving statistics for Diarrhœa which are comparable with those for past years. For this reason the above table has been prepared, shewing the various names under which fatal deaths from Diarrhœa are returned. All these are in accordance with the Registrar-General's rule entered as Diarrhœa, except Enteritis and Gastro-Enteritis. The following additional facts make it clear that deaths formerly certified as Enteritis or Gastro-Enteritis are now being transferred to some extent to Diarrhœa under the names of Epidemic or Zymotic Enteritis. In 1900, 1901 and 1902, the deaths registered as Enteritis numbered 52, 36 and 20, and from Diarrhœa 94, 110, 50. Thus, while the proportion of Enteritis to the total number was 36 per cent. in 1900, it fell to 25 per cent. in 1901, and 27 per cent. in 1902. These facts must be remembered in comparing the diarrhœal death-rate of 1902 with that of earlier years.

	Deaths per 1,000 Births.		Deaths per 1,000 Births.
1891	15·5	1897	28·8
1892	23·0	1898	42·7
1893	29·2	1899	62·5
1894	17·0	1900	32·2
1895	33·7	1901	28·9
1896	24·1	1902	16·3

The ideal way of stating the diarrhœal death-rate would be to give the number of deaths from this cause among children under one per 1000 births. It will be noted that in 1902, these formed 74 per cent. of the total number. As the deaths over 5 were chiefly aged persons, and probably were in most instances not true epidemic Diarrhœa, this method of statement gives a death-rate which is much more comparable with a similar death-rate for other towns, than a death-rate stated in terms of the entire population, in which the number of infants is a very varying proportion of the total population.

With the exception of 1891, the death-rate from Diarrhœa in Brighton was last year the lowest on record. The largest number of deaths (7) occurred in Lewes Road Ward, the next being Hanover and St. Peter's Wards, with six deaths in each.

Municipal Scavenging.—As usual 10,000 circulars giving precautions required for the prevention of Diarrhœa were distributed during the month of June. The usual semi-weekly removal of house refuse replaced the weekly removal during July, August and September, and extra precautions were taken in street scavenging.

Much of our relative immunity from Diarrhœa was doubtless caused by the fact that each week throughout the summer there was more or less fall of rain, the lowest amount in any one week being ·08 inch (week ending September 27th), and the highest amount 1·61 inch (week ending August 23rd). Whatever be its mode of operation, a frequent fall of rain during the summer weeks, even though its total amount be not great, is one of the most effectual means of keeping down the diarrhœal death rate (see Table VII., page 81). The practical lesson from this is obvious. When the natural scavenging of rain fails, it should be replaced by municipal scavenging. The weekly swilling of our streets, especially of the gutters in narrow streets occupied by the poor would go far towards reducing our diarrhœal death-rate. The question arises whether the large amount of water daily used in sprinkling the roads is at present used to the best advantage. It converts dust into mud, but it does nothing towards removing this mud. Probably half the amount of water used twice a day along each side of the road, the cart being followed by a man who would sweep the mud into heaps for removal, would secure a more efficient removal of dust than can be obtained in connection with our present system of sprinkling water, which merely "lays" it. This practical problem has become simplified by the extent of road surfaces now covered by wood and asphalte. These represent an enormous sanitary improvement. The wood pavement is already washed daily. The asphalte pavements in back streets are not so treated, and the channels in narrow streets, paved with macadam, are left in a very undesirable condition.

Although the rainfall of last summer was instrumental in keeping down the amount of epidemic Diarrhœa, the total rainfall for the year was only 21·74 inches, being 6·86 inches below the average for 26 years.

The following table shews to what extent the annual rainfall deviated from that of the average for the 26 years for which observations have been taken at the Brighton Meteorological Station, and brings out the fact that, with three exceptions, there has been a continued deficiency of rain from 1887 onwards :—

Deviation from Average Rainfall (28·60 *in.*) *of* 26 *years*, 1877-1902.

Year.	Deficiency.	Excess.	Accumulated Deficiency.
1887	6·50	—	6·50
1888	0·44	—	6·94
1889	1·15	—	8·09
1890	4·99	—	13·08
1891	—	5·78	7·30
1892	2·13	—	9·43
1893	4·47	—	13·90
1894	—	3·35	10·65
1895	3·41	—	14·06
1896	0·76	—	14·82
1897	—	0·52	14·30
1898	8·19	—	22·49
1899	5·13	—	27·62
1900	0·77	—	28·39
1901	5·99	—	34·38
1902	6·86	—	41·24

Temperature and Diarrhœa.—Earth temperatures at a depth of 4 ft. are regarded as an important index of the possibility of prevalence of epidemic Diarrhœa ; and it has been accepted almost as an axiom that we must expect Diarrhœa to prevail when the 4 ft. earth thermometer has reached Ballard's critical point of 56° Fahr. The experience of last summer shows the fallaciousness of this indication. In Brighton, the 4 ft. earth thermometer reached 56° on the 24th June. On the 30th June it was 58·4°. During the second half of July it remained between 60° and 61°. In August it reached 61·8°. It reached its maximum of 62·6° on the 10th September, then slowly falling, but keeping above 56° until the 19th October, when it was 55·8°. But no deaths from Diarrhœa occurred, and, contrary to Ballard's rule, the highest number of deaths from Diarrhœa in any one week did not occur in the week in which the 4 ft. earth thermometer attained its mean weekly maximum, but three weeks later.

The key to the anomaly is found in the fact that in each week of the third quarter of 1902 more or less rainfall occurred. The temperature conditions were favourable to Diarrhœa, the rainfall prevented it. The facts for the present year justify the conclusion that rainfall is more important than temperature in relation to epidemic Diarrhœa.

Milk supply and Diarrhœa.—Milk is probably the most common vehicle for the infection of Diarrhœa, and I have therefore collected the available evidence as to the milk supply of the 226 fatal cases of Diarrhœa which have occurred in Brighton in the three years 1900-02. In 31 of these cases the milk supply could not be ascertained, and in four the milk was derived from more than one source. There remain 191 cases of known milk supply. Of these 18 or 9·4 per cent. were breast-fed and 84 or 44 per cent. were fed solely on condensed milk. Unless therefore we assume that condensed milk before it is opened contains infective material in a large proportion of instances (an unlikely supposition), it is clear that if we assume milk to be the means by which the infection of Diarrhœa is conveyed, this milk must in more than half the fatal cases have been infected after reaching the home of the patient. I have no figures showing the proportion of total infants who are fed on condensed milk. Unless more than 44 per cent. of these infants are fed on condensed milk, we must conclude that condensed milk favours Diarrhœa more than cows' milk, or that (which is very unlikely) milk has no relation to Diarrhœa. I do not believe that either supposition is correct. It appears to me that the important point is that the milk, whether condensed or fresh, shall not be subjected to conditions of uncleanliness, particularly in the homes of the people. I am of opinion that specific infection of milk at the farm or in transit is responsible for these epidemics of Diarrhœa occurring in connection with a particular milk supply, just as in the analogous case of a milk epidemic of Enteric Fever; but that the ordinary sporadic cases of Diarrhœa are due chiefly to domestic infection of milk or other foods or to the direct swallowing of infective dust. The statistics of milk supply in Brighton throw some light on this point. The following table shows the different supplies of milk among the families invaded by Diarrhœa during the last three years :—

Source of Milk.	No. of deaths from Diarrhœa.
Condensed Milk	84
Human	18
Sterilized Milk	1
Dairy A	13
,, B	6
,, C	5
,, D	4
,, E	4
,, F	4
,, G	4
,, H	3
,, I	3
,, J	3
,, K	3
,, L	3
,, M	2
,, N	2
,, O	2
,, P	2
,, Q	2
,, R	1 each in 24 dairies.

So far as individual sources of milk are concerned, on the assumption that milk was the infecting agent, we had to deal with 41 sources of supply, in 24 of which only one fatal case of Diarrhœa occurred in connection with each dairy. Unless we assume that a very large proportion of non-fatal cases occurred, we must infer, in view of the diffusibility of milk, that *most of these milk supplies were non-infective before they reached the home of the indidual patient.*

There is a close analogy between Enteric Fever and epidemic Diarrhœa. Both are specific febrile diseases; in both, the excreta are infective; in both, personal infection bears a much larger share in the spread of the disease than is generally recognized; in both, so far at least as this country is concerned, the conditions originating sporadic cases are in the aggregate a more extensive cause of disease than the conditions producing milk or water epidemics. Multiple cases of diarrhœa in houses are not uncommon; flies may convey the infection from one house to another. Only those who frequently visit the homes of the poor in summer can realize that food can scarcely escape massive fœcal infection. There are no pantries; food is stored in cupboards in a living room or bedroom. The sugar used in sweetening milk is often black with flies, which have come from a neighbouring dust-bin or manure-heap, or from the liquid stools of a diarrhœal patient in a neighbouring house. Flies have to be picked out of the half-empty can of condensed milk before its remaining contents can be used for the patient's next meal. While agreeing entirely with Professor Delépine's conclusion that fœcal contamination of food is responsible for most of our epidemic diarrhœa, it appears to me that the swallowing of fœcal dust apart from food is responsible for a not inconsiderable amount of this disease, and that the infection more commonly has a domestic than a bucolic origin. The foul condition of feeding bottles, whatever the source of milk, gives ample time as well as a suitable temperature for the multiplication of coli bacilli (the possible cause of the disease) in the intervals of feeding of infants. These coli bacilli may sometimes originate from the cow; they may also, as Dr. Waldo has suggested, be derived from horse manure. We cannot afford to neglect either of these possibilities, but I think that human coli bacilli are probably a more common source of infection, and that in this disease, as in tuberculosis, our chief enemy is in our own and in neighbouring households. When we remember the habits of personal uncleanliness of many mothers, and that they often prepare their infants' food with unwashen hands, the inoculation of this food with virulent coli bacilli of human origin ceases to be a matter of surprise. Several things are required before we can hope for much reduction in diarrhœal mortality :—

(1). Exact instruction of the older girls in our day schools in the art of preparing infants' food; and in the principles and practice of sterilization of food and of bottles; and in the minutest details involved in the cleanly handling and storing of food.

(2). Greater domestic and municipal cleanliness, involving, as this will, the reduction of dust both in houses, courts and streets, and the substitution both domestically and municipally of wet cleansing and more frequent cleansing for the dry and infrequent cleansing now in vogue.

(3). A crusade against the domestic fly, which is most numerous at the season and in the years when epidemic diarrhœa is most prevalent, and probably plays a large part, as already indicated, in spreading infection.

TUBERCULAR DISEASES.

Mean Annual Death-Rate in Brighton from Phthisis (Consumption) and other Tubercular Diseases per 100,000 persons in Groups of Years.

	Phthisis.	Other Tubercular Diseases.
Ten years, 1861-70	295	98
Ten years, 1871-80	247	78
Three years, 1881-83	193	?
Three years, 1884-86	169	?
Four years, 1887-90	169	?
Four years, 1891-94	150	82
Four years, 1895-98	149	63
1899	146	28
1900	139	47
1901	134	59
1902	139	40

NOTIFICATION OF PHTHISIS.

Voluntary notification of Phthisis by medical practitioners was begun in January, 1899, no payment being then made for such notifications. Between that date and September 11th, when the new arrangement to pay for each case of Phthisis notified in private practice, 2s. 6d., and in public practice, 1s., came into operation, 70 cases were notified. From September 11th to December 31st, 1899, 43 cases were notified. During 1900, 105 cases were notified.

During 1901, 153 cases were notified and 9 cases re-notified. During 1902, 224 cases of Phthisis were notified. Of these 35 were again notified during the course of the year; 17 other cases which had been notified in a previous year were re-notified during 1902. Of the 52 cases re-notified, 17 were notified once, 30 were notified twice. 4 three times, and 1 case four times during 1902.

The number of notifications received during the year was 282, of which 62 were in private practice (fee 2s. 6d. a case), 128 in public practice (fee 1s. a case), 57 were reported by Relieving Officers (fee 6d. a case), 16 were notified by relatives, 18 by the Master of the Workhouse, and 1 by the Medical Officer of Health. The fees paid for notification were £15 11s. 6d.

The number of cases notified now greatly exceeds the number of deaths. The provision of Sanatorium treatment has given an additional incentive to notification, and the number of available beds having been increased from 4 to 10, we shall doubtless see during 1903, a further extension of notification and of the useful work which is carried on in connection with it.

Stage of Disease at which notification occurs.—Five cases were notified at the time of or after death, 7 were notified less than a week before death; 1-2 weeks, 7; 2-4 weeks, 6; 1-2 months, 16; 2-3 months, 7; 3 4 months, 3; 4-6 months, 5; 6-12 months, 8. Thus of 224 total cases notified for the first time in the year, 71·5 per cent. are alive (March 6th, 1903). Of the 17 cases re-notified from the preceding year, 3 have died during 1902.

Of the cases notified during the year, 51 died at home, 13 in the Workhouse Infirmary. Of the cases which up to March 6th, 1903, had not been fatal, 29 had been admitted to the Workhouse after notification, 25 had been admitted for open-air treatment to the Borough Sanatorium, 7 (6 sent by the Corporation) had been admitted to Pokesdown Sanatorium, 4 to Mount Vernon Hospital, 5 to the Sussex County Hospital, and 1 each to institutions in Worthing and Ventnor, 14 had left Brighton, 5 had removed to unknown addresses, and the addresses of 7 notified cases were incorrectly given.

Notification of Change of Address.—

During the year eight changes of address of phthisical patients were received from relieving officers, enabling prompt disinfection to be carried out. Fifteen other patients removed once and four removed twice during the year to other addresses. In the majority of these cases disinfection was carried out, but usually not promptly, owing to the non-notification of the removal, and its consequent discovery only when the next periodical visit was made.

Disinfection —In 86 cases houses were disinfected after removal of patients. Of these—in 56 cases rooms were sprayed; in one case the room was fumigated with sulphur by the tenant; in 18 cases walls of rooms were stripped, cleansed and whitewashed; in 8 cases the walls of the whole house were stripped, cleansed and whitewashed; in 6 cases the walls of the rooms were rubbed down with a wet cloth: in 30 cases the bedding was washed by the tenant: in one case the bedding was burnt; and in 37 cases the bedding was removed for disinfection by steam.

The following action was taken *after Death from Phthisis*. In 183 cases disinfection was carried out as follows. In 127 cases rooms were sprayed; in 75 cases the rooms were stripped, cleansed and whitewashed; in 22 cases the whole house was stripped, cleansed and whitewashed; in 12 cases the walls were rubbed down with a damp cloth; in 51 cases the bedding was washed; in 9 cases the bedding was burnt; in 3 cases the clothing of the deceased was burnt; and in 99 cases the bedding was removed for disinfection by steam.

The following defects, in addition to the above, were found and remedied in connection with visits to cases of, and deaths from, Phthisis:—

Cellar Dwellings	1
Windows not made to open properly	5
Defective stack pipes	2
No rain water guttering	1
Defective ashpits and dustbins	17
Leaky roofs	6
Defective paving	21
Defective sinks	11
Defective closets and soil pipes	29
Defective plastering on outer walls	8
Defects of drains, &c.	12
Dirty houses	9
Overcrowding	7
Other nuisances	10

Experience as to Notification.—Having now had four years experience of the voluntary notification of Phthisis, our procedure in connection with notification has become fairly settled, and I am able to give a trustworthy opinion on the degree of benefit obtainable from it. I am much indebted to Mr. Skinner, the Chief Sanitary Inspector, who, during the past year, has undertaken a large share of the visits in connection with notified cases, and has kept a record of all measures of disinfection, removal to hospital, &c.

The procedure adopted is that (1) the notified patient is visited at home, or is interviewed at my office in connection with proposed removal to the Sanatorium for open-air treatment. At this interview exact details are ascertained as to the duration and history of the illness, the possible sources of infection, places of residence during the illness, occupation and work places during the past five years, &c.

(2) The sanitary condition of the patient's house is investigated, and all necessary measures for cleansing, disinfection and the remedy of sanitary defects are carried out.

(3) If the patient is removed to the Sanatorium the patient's room, bedding, &c., are disinfected.

(4) The patient is instructed as to the exact precautionary measures required. If poor he is supplied with a pocket spittoon and with Japanese handkerchiefs.

It may be urged that the intervention of my department under the last head is unnecessary, as the medical practitioner will already have given similar instructions. In actual practice it is the exception to find that the necessary precautions are being adopted.

The following instances, which might be multiplied, if necessary, illustrate this fact:—

> Mrs. F., aged 49, died of Phthisis on June 22nd. Her case had not been notified. She had been ill about two years. On visiting the house a number of handkerchiefs were lying in the back yard, saturated with expectoration, waiting to be washed. The relatives had received no instructions that these should be kept in soak until washed.
>
> A woman, aged 55 has been ill with Consumption five years. Case not notified. Information of her case was obtained by her sending for Japanese handkerchiefs. On inquiry it was found that her daughter, aged 32, failed five weeks earlier with Pleurisy, almost certainly tubercular. She always slept with her mother prior to this illness.

I am increasingly of opinion that the notification of Phthisis is necessary in the interest of the public health, and that we must look forward to a great increase of work under this head.

The value of notification is great in proportion to the earliness of the stage at which it is secured. I occasionally see cases in which the diagnosis of Phthisis has been delayed until the hope of recovery is but small. A persistent cough is treated without any examination of the expectoration, and thus valuable time is lost (see also page 74). In other instances the patient is kept in ignorance of the disease from which he is suffering. As his chief hope of recovery consists in actively co-operating in the measures to this end, this policy is always detrimental to the patient.

Even when notification is left until the disease is advanced, much important preventive work can be effected. The expectoration in the later stages of the disease is very infective, and measures such as the proper use of a spittoon, the avoidance of expectoration except with a Japanese handkerchief in front of the mouth which can be immediately destroyed (so as to avoid spray infection) are extremely important. For the same reason I have not hesitated occasionally to admit to the Sanatorium patients with fairly advanced Phthisis in which there is no hope of recovery, in order that they might be trained in the prevention of the spread of infection.

There are those who regard direct measures against the spread of infection as of secondary importance, and the direct measures of sanitation, such as cleanliness of homes, increased light and ventilation, &c., along with the improvement of nutrition by better and more abundant food, as of supreme importance. I am not inclined to belittle the importance of these indirect measures. Their value is indicated by the great successes we have had in the Sanatorium treatment of Consumption, in which an open-air life and a generous diet are the main causes of success. But close inquiries into individual notified cases make one steadily more convinced of the supremely important part played by infection in the causation of this disease. For particulars, see illustrative cases, pages 65 to 67. And having come to this conclusion, I am more convinced than ever that the effective prevention of the spread of infection can only be secured when the family practitioner and the medical officer of health co-operate; and that even then it is difficult, without Sanatorium treatment and training, to convince the patient of the necessity for the simple measures which are required in order (*a*) to give himself his best chance of recovery, and (*b*) to prevent the infection of others by him.

Sanatorium Treatment of Consumption.—The preceding considerations have led the Town Council to take steps to secure the open-air treatment of Brighton consumptive patients. In May, 1902, we commenced to send patients to the Pokesdown Sanatorium, and during the year six patients were treated there. The results are shewn in the following tabular statement.

Pokesdown

Patient.	Occupation.	History of Infection.	Duration of illness.	Stage of Disease on admission.
1. Y. W., man, aged 24, of 7 N. St.	Labourer	Father died of Consumption a few months before apparent onset of his illness	About a year	Fairly advanced
2. T. F. D., male, aged 17, of C. Rd.	Upholsterer's apprentice	Probably in dusty occupation (taking up old carpets, &c.	About 3 months	Early
3. W. W., man, aged 42, of 17 R. St.	Porter	None	5-6 years	Chronic
4. D. N. R., man, aged 27, of 7 D. Rd.	Clerk in seed shop	None	2-3 years	Middle
5. D. H., girl, aged 20, of F. G. Pl.	Chambermaid at Hotel.	Probably from Consumptive fellow servant, who occupied same room and had copious expectoration	1 year	Middle
6. N. I., girl, aged 20, of 8 K. St.	Dressmaker	Nursed her brother who died of Consumption about the time she fell ill	1 year	Fairly early

Sanatorium.

Weight on admission.	Gain of weight while in Sanatorium.	Admitted to Sanatorium.	Stay in Sanatorium.	Result.	Subsequent history obtained March, 1903.
?	?	May 2nd	103 days	Very slight improvement.	Died Dec. 13th
?	?	May 2nd	92 days	Apparently cured	Remains well
9 st. ¼ lb.	1 st. 2¾ lbs.	June 3rd	69 days	Improved	About the same
?	?	August 2nd	79 days	Improved	Left Brighton
?	?	August 11th	92 days	Improved	Very slight cough
?	?	Sept. 16th	?	Apparently cured	Cough returning

The cases notified to us are usually suffering from the disease in a stage at which cure cannot be expected even by three months treatment in an open-air Sanatorium. This fact, and the difficulty of coping with our notified cases, led me to present the following report in July, 1902.

"July 8th, 1902.

"To the Sanitary Committee.

"GENTLEMEN,—Since you arranged for the admission of three patients suffering from Consumption to a Sanatorium in which the open-air treatment is carried out, I have had a considerable number of patients sent to me for whom the treatment is urgently required; and it is distressing to think that their prospects of recovery are diminished, and perhaps lost, while waiting for vacancies in your three beds.

"In view of this condition of matters, I beg to ask you to authorize me to admit a few patients, suffering from Consumption, into one of the isolation pavilions at the Borough Sanatorium, capable of accommodating four patients at a time, subject to my reporting at the end of three months the results of the experiment, especially as to whether it is practicable to carry out this treatment at the Borough Sanatorium.

"I am strongly of opinion that, apart from the possibility of curing such patients, it is in the public interest to admit Consumptive patients not living under favourable conditions at home to the Borough Sanatorium for a month or two, according to circumstances. It will diminish disease and improve the public health in three ways:—

"1. The patient himself will be improved, and enabled to start afresh, with a good prospect of recovery.

"2. While he is in the Sanatorium, his home can be cleansed and purified, his wife and family will have a holiday in the sense of being free from repeated attacks by the infective material causing Consumption.

"3. The patient, when sent home, will have been taught to so manage his expectoration that it is no longer a source of risk to his family and to those with whom he works.

"I have recently had several very striking cases in which infection had been spread in workshops by the indiscreet spitting of Consumptive workmen. I cannot imagine that such a workman, on resuming work after having a month's holiday and rest in the Borough Sanatorium, would continue such spitting without due precaution.

"I am, Gentlemen,
"Yours obediently,
(Signed) "ARTHUR NEWSHOLME."

The Council at once agreed to the admission to an empty pavilion of the Fever Hospital of four consumptive patients under the conditions stated in the preceding report, and the results obtained are set forth in the following tabular statement.

Patient.	Occupation.	History of Infection.	Duration of Illness.	Stage Disea
1. K. T., man, aged 42, of 60 D. Rd.	Coach painter	Workshop infection	6 years	Advan but chr
2. G. H., boy, aged 17, of 14 O. Rd.	Metal polisher	None	1 year	Midd acti
3. B. H., man, aged 21, of 20 F. G.	Electrician	None (engaged at a place of public amusement)	8 months	Midd
4. D. I., man, aged 28, 54 L. St.	Cook	None (engaged at a public restaurant)	Some years	Midd acti
5. H. D., man, aged 26, of 50 T. Rd.	Shop assistant	None	2½ years	Advan
6. I. N., man, aged 47, 100 X. St.	Labourer	Onset after influenza 9 years ago	Many years	Advan
7. X. D., man, aged 39, 13 H. W. Gdns.	Blacksmith	Probable workshop infection	Some years	Midd chro
8. D. N., man, aged 31, of 15 U. Ter.	Postman	Wife died of Consumption	Several years	Midd
9. F. S., man, aged 26, 55 X. St.	House painter	None	About 1 year	Early, acut
10. H.W., man, aged 27, 4 T. Rd.	Labourer	Sister had consumption in same house, onset earlier than this patient	3 months	Earl
11. L. K. D., man, aged 51, 13 D. Rd.	Blacksmith	Frequents public houses	2 years	Adva
12. J.C., boy, aged 16, 19 J. Rd.	Shop assistant	Sister died 1 year ago in same house from Phthisis	9 months	Ear
13. Mrs. T., aged 28, 25 X. Rd.	Wife of labourer	None. Domestic privation	3 years	Midd
14. W. Q., girl, aged 17, 2 C. St.	Shop assistant	None	6 months	Earl

righton.

ight on mission.	Gain of Weight while in Sanatorium.	Admitted to Sanatorium.	Stay in Sanatorium.	Result.	Subsequent History obtained March, 1903.
t. 7 lb.	12¾ lb.	July 21st	33 days	Greatly improved	September 23rd. Doctor reports cavity has dried up and become much smaller. Remains better. (March).
t. 4½ lb.	9½ lb.	July 21st	36 days	Greatly improved	Continues better
st. 2 lb.	5 lb.	July 21st	26 days	Slight improvement	No better.
t. 8½ lb.	4½ lb.	July 23rd,	31 days	Greatly improved	Has relapsed.
t. 12¾ lb.	8¼ lb.	August 19th	27 days	Slightly improved	Fairly well.
t. 13½ lb.	8 lb.	August 19th	28 days	Much improved	Continues able to work.
st. 3½ lb.	2½ lb.	August 26th	27 days	Improved	Fairly well.
t. 11½ lb.	8¼ lb.	August 25th	28 days	Much improved	Continues better
st. 2 lb.	8¾ lb.	Sept. 20th	26 days	Greatly improved	Continues better
st. 11 lb.	8 lb.	Sept. 23rd	30 days	Improved	Died March 3rd, 1903
st. 3 lb.	3¼ lb.	Sept. 23rd	25 days	Improved	Not so well.
st. 4 lb.	8 lb.	Sept. 23rd	27 days	Apparently cured	Continues well.
st. 6 lb.	8 lb.	Oct. 22nd	28 days	Improved	Still considerable expectoration. Is going to Ventnor Hospital.
st. 1½ lb.	3½ lb.	Oct. 21st	28 days	Almost well	About the same.

Patient.	Occupation.	History of Infection.	Duration of Illness.	Stage Disea
15. G. I., man, aged 19, 33 D. Rd.	Clerk	None	2 years	Advan
16. F. O., man, aged 21, of 15 H. Pl.	Machinist	Father died of Consumption 6½ years ago	1-2 years	Midd
17. F. E., girl, aged 22, of 76 O. Rd.	Ironer and domestic servant	None	6 months	Acute l case : vanc
18. K. I., man, aged 19, of 8 K. St.	Machinist	Brother died of Phthisis in same house, and sister ill at same time with Phthisis	4 to 6 months	Earl
19. N. N., man, aged 30, 68 T. Rd.	Tailor	Worked in a tailor's workroom, where men spat about between boards of floor. Some of these men had very bad coughs, and expectorated	4 months	Earl
20. K. C., man, aged 20, 26 I. St.	Cycle Machinist	Workshop infection (master died a short time previously of phthisis)	A few months	Rap disea
21. J. X., man, aged 50, 22 J. St.	Painter and Glazier	None	4 years	Midd chro
22. K. E., man, aged 49, 17 Q. Rd.	Smiths' Striker	After influenza, two years ago	2 years	Midd chro
23. N. I., man, aged 30, 25 P. St.	Indoor Painter	Patient's sister died on October 20th in room now occupied by patient	A few weeks	Ear
24. D. Q., man, aged 20, 26 C. St.	Fitter's Apprentice	Probable workshop infection	1 year	Mid
25. H. H., boy, aged 14, 106 F. Gr.	School-boy	Domestic. Mother died of consumption ; step-mother has consumption	Doubtful	Ear

Brighton—(Continued).

Weight on Admission.	Gain of Weight while in Sanatorium.	Admitted to Sanatorium.	Stay in Sanatorium.	Result.	Subsequent History obtained March, 1903.
6 st. 5 lb.	9 lb.	Oct. 23rd	30 days	Greatly improved	Is now in Ventnor Hospital
8 st.	4 lb.	Oct. 23rd	57 days	Improved	Worse.
6 st. 6½ lb.	Lost ½ lb.	Oct. 31st	43 days	No improvement	Died March 6th, 1903
8 st.	9¾ lbs.	Nov. 22nd	41 days	Greatly improved	Continues better.
9 st.	10½ lb.	Nov. 6th	35 days	Apparently cured	Remains in better health, but has some expectoration
—	—	Nov. 29th	11 days	Died	—
11 st. 1½ lb.	7¾ lb.	Dec. 5th	29 days	Much improved	Has relapsed
—	—	Dec. 15th	4 days	Left at own request	—
9 st. 8¾ lbs.	9¾ lbs.	Dec. 15th	32 days	Apparently cured	Has not lost weight since discharge. No expectoration. Is in regular work
7 st. 11 lb.	3 lb.	Dec. 30th	31 days	Slight improvement	Not so well
5 st. 6¾ lb.	7¼ lb.	Dec. 29th	33 days	Greatly improved	Remains better

In December, I further reported on the subject, recommending that we should undertake the treatment of our own consumptive patients and this recommendation was at once passed. The following are the essential paragraphs of of this report.

> "The results (obtained at our own Sanatorium) have been extremely satisfactory, if it be remembered that severe, and in many instances advanced, cases have been admitted. By thus treating patients for about a month it has been found possible to secure, in most instances, great improvement, and to prolong the working life of the patient, while at the same time freeing the public in a large measure from serious risk of infection.
>
> "I am confident we cannot do better than continue on the lines thus started at our own Sanatorium, and I am so satisfied with the results obtained there that I am now prepared to recommend you to cease sending patients out of Brighton, and to extend, to a certain extent, the treatment of them in our own Sanatorium.
>
> "I therefore recommend that (1) no further patients be sent to the Sanatorium near Bournemouth, to which you have hitherto sent them ; (2) I recommend that you authorize me, as soon as practicable, to increase the number of patients to be admitted to our own Sanatorium from four to ten ; (3) I recommend that the stay of these patients be left an open question to be decided in each case according to circumstances.
>
> "There is no doubt that the majority of the patients will be unable to come into the Sanatorium for longer than a month. They would lose their means of livelihood if they were absent from work for longer than that time. In a certain number of other cases, however, it is possible to arrange for a longer treatment, and if the improvement made in the month is such as to justify continuing the expense of the treatment, I recommend that this be continued for a second or even a third month.
>
> "I am unable to furnish an exact estimate of the cost of treating ten patients at the Borough Sanatorium, but in view of the known cost of other patients, I think it is reasonable to suppose that it will not exceed 32s. a week.
>
> "On this basis the annual cost of treating ten patients will be £832. At the present time we are spending nine guineas a week for three patients at the Pokesdown Sanatorium, or £491 per annum, and £332 per annum for four patients constantly in our own Sanatorium, making almost the same total as the cost of the ten patients to be admitted under the proposed arrangement to our own Sanatorium.
>
> "At the same time I should point out that under the proposed arrangement 120 patients, or a somewhat smaller number if a proportion of these cases are kept in longer than a month, will be benefitted, as compared with 60 under the present conditions.

This report was adopted by the Council, and action at once taken in accordance with its terms.

Particulars obtained in Notified Cases.—In each case an attempt was made to trace the probable source of infection. When the possible sources of infection are so numerous, and while indiscriminate expectoration on the part of the public is so common, the exact source of infection must in most instances be incapable of being demonstrated. It seems clear, however, that repeated and protracted exposure to infection is necessary for most people before they become victims to this disease. Many others become infected but are able to overcome the disease. There is evidence of cured tuberculosis in a large proportion (sometimes stated as high as one-half) of the post-mortem examinations made on patients dying of other diseases. While, however, it may be argued that infection may have been derived elsewhere, it is reasonable to suppose that the most persistent and protracted known source of infection is the probable cause of disease in a given case, and on this basis the following rough classification and illustrative cases are given:—Cases in which no history of infection was obtainable, 52; cases imported into the town, 43; domestic infection, 46; industrial and alcoholic, 12. The last number is almost certainly understated.

Instances of Method of Spread of Infection.

Domestic Infection.—Mrs. W., aged 24, of No. 15 J. Road, was notified to be suffering from Consumption on September 19th, 1902, and died on November 10th, 1902. Her child, aged two months, who was fed entirely from the breast, died of Tabes Mesenterica (Consumption of the Bowels) on August 14th, 1902.

George W., aged 28, of No. 6 J. Road, a tram conductor, was notified on January 11th, 1902, having come to Brighton in November 1901, already ill with Consumption. There is no history of Consumption in his family, but five of his wife's relatives have died of this disease in London (where he was employed before coming to Brighton), including his wife's father, three years ago; wife's cousin, in November, 1901. His wife's brother is now ill with Consumption in London.

Mrs. I., of No. 34 O. Street, died of Consumption on December 4th, 1902. She was notified on November 6th. She had lived 14 years in this house. Her husband died of Consumption 16 years ago in Circus Street. A lodger in the present house one and a half years ago, died from Consumption, and the bedding, &c., were then disinfected.

A man, aged 20, of No. 90 N. Road, died of Consumption on May 23rd, 1902. A brother died in the same house on April 23rd, 1900. Another brother died of Addison's disease (which is a tubercular disease) on April 3rd, 1900.

A boy aged one year and four months, of No. 24 C. Street, died on January 10th, 1902. He had suffered from Measles four months previously, and was never well afterwards. This patient's mother was attended in her confinement by a female lodger, who lived in the same house until a month before the death of the patient. This lodger has a bad cough and expectoration and was an out-patient at the Sussex County Hospital. She was very fond of the child, and was frequently fondling and kissing him. The mother and father and other six children in this family have remained well.

A man, aged 32, of No. 83 T. Road, died of Consumption after three years' illness. His brother's wife died of Consumption in the same house one year ago, and his brother's child, aged two months, died of Tuberculosis in August, 1901.

Case No. 4, treated at Pokesdown. While he was there, we were informed that his wife, who remained at home, was now ill with phthisis, evidently caused by infection before his removal to the Sanatorium. This is confirmed by the fact that a month before the above patient's removal to Pokesdown, a lodger's child, aged 13 months, died in the same house of Tubercular Meningitis.

The following history illustrates how Tuberculosis occasionally decimates a family, and how one patient may infect many houses :—

Mrs. B., aged 36 years, notified December 24, 1901, at 26 Q. Street, ill many years.

Son, aged 5 years, died 7 years ago at N. Place, of Convulsions.

Son, ,, 9 months, ,, 9 ,, ,, S. Gardens, of Marasmus.

Daughter, aged 8 months, died 6 years ago at A. Hill of Marasmus and Convulsions.

Son, aged 8 months, died August, 1902, at 26 Q. Street, of Tabes Mesenteria (Consumption of Bowels).

Infection in Domestic Service.—N.C., a young woman, aged 18, of No. 2 B. Street, died of Consumption on July 18th, 1902. She had been ill for seven months, but had only left her place as a domestic servant at No. 42 L. Place, in another town, six weeks before her death. There was no previous history of Consumption in the family ; the father and mother and one sister, aged 20, have remained well. The history of this patient is that while in service at No. 42 L. Place, part of her duties was to wash the handkerchiefs and empty and wash the spittoons which had been used by a lady visitor (Mrs. F.) at the above house. This visitor died of Consumption on May 18th, 1902, after living at the above house for eighteen months. While living at this house, her child, aged two years, died of tubercle of the brain. The above patient, N.C., was quite well until coming to live at this house in November, 1901. She left at the end of April, 1902, returning to No. 2 B. Street. Her sister, M.C., aged 23, who was also in service as housemaid at No. 42 L. Place, failed with consumption about the time of N.C.'s death, and is now (March 10th) in the Sanatorium undergoing the open-air treatment. Part of her duties was to sweep out Mrs. F.'s room. George C., aged 16, brother of the above two patients, failed with Consumption in November, 1902, and is now at home too ill to be removed to the Hospital.

Industrial Infection.—A man, aged 38, had lived one and a half years in Brighton before dying of Consumption. He had been ill with Consumption for three years. Before coming to Brighton he was a printer at well-known printing works in London. Several of his fellow workmen had Consumption. A man working at the next bench died of Consumption four years ago. There was much spitting in the shop.

A man, aged 19, was notified to be suffering from Consumption on October 28th, 1902. He had only been ill four or five months. He had been employed in a workshop for eight months. The proprietor of this shop died of Consumption on January 1st, 1902. No disinfection of the shop had been carried out. The above patient's family, including the father and mother and five other adult relatives, are all well, and there is no family history ot Consumption.

Office Infection.—Richard T. W., aged 23, was well until Easter, 1902. He then began to have a troublesome cough. He has been a clerk for eight years ; five years in his present office. A previous clerk in the same office, who was in the same underground room with himself, died of Consumption in November, 1901, and continued at his work in this office until a few days prior to his death. He had worked in this office for eighteen months. There is the following alternative history:—The above patient, Richard T. W., lodged with Mrs. P., of No. 23 F. Street, who was notified on August 20th, 1902, to be suffering from Consumption, having then been ill for three years,

Occupations of Consumptive Patients.

Occupation.	Cases notified during 1902 and still living at the end of the year.		Cases notified and dying during 1902.		Other deaths from Consumption during 1902.		Remarks.
	M.	F.	M.	F.	M.	F.	
Agents	1	—	—	—	—	—	
Actresses	—	—	—	1	—	—	
Accountants	1	—	—	—	—	—	
Artists	—	—	—	—	1	—	
Blacksmiths	1	—	—	—	—	—	See also Railway Works
Billiard Room Proprietor ...	—	—	—	—	1	—	
Billiard Marker	—	—	1	—	—	—	
Boatmen	—	—	1	—	1	—	
Brewery Collector	—	—	—	—	1	—	
Bricklayers	—	—	2	—	2	—	
Bricklayers' Labourers	2	—	1	—	1	—	
Butchers	—	—	1	—	1	—	
Barmen	—	—	—	—	1	—	
Bottler at Mineral Water Factory	—	1	—	—	—	—	
Bicycle Makers	—	—	1	—	1	—	
Cartridge Makers	1	—	—	—	—	—	
Commercial Travellers	—	—	—	—	3	—	
Cabmen	—	—	2	—	3	—	
Cellarmen	1	—	—	—	1	—	
Charwomen	—	1	—	—	—	2	
Chemists	—	—	—	—	2	—	
Carmen	1	—	—	—	2	—	
Carpenter	1	—	—	—	—	—	
Clerks	6	—	—	—	3	—	
Cooks	1	—	—	—	—	—	
Dining Room Proprietor ...	—	—	—	—	1	—	
Drovers	1	—	1	—	—	—	
Drapers	—	—	—	—	1	—	
Domestic Servants	—	11	—	1	—	2	
Dressmakers	—	10	—	—	—	—	
Electricians	2	—	—	—	1	—	
Fishermen	2	—	—	—	—	—	
Fishmongers	—	—	—	—	1	—	
Fish Hawkers	1	—	—	—	2	—	
Furniture Dealers	1	—	—	—	—	—	
Fancy Shop Keepers	1	1	—	—	—	1	
Grooms and Ostlers	2	—	—	—	1	—	
Gardeners	1	—	—	—	—	—	
Gilders	—	—	—	—	1	—	
Gas Office Collectors	1	—	—	—	—	—	
Gasfitters	2	—	—	—	1	—	
Greengrocers	—	1	—	—	—	—	
Grocers	2	—	—	—	—	—	
Hand Chairmen	1	—	—	—	1	—	
Hawkers	3	1	1	—	—	—	
Hosiers	1	—	—	—	—	—	

Occupations of Consumptive Patients—Continued.

Occupation.	Cases notified during 1902 and still living at the end of the year.		Cases notified and dying during 1902.		Other deaths from Consumption during 1902.		Remarks.
	M.	F.	M.	F.	M.	F.	
Hospital Nurses	—	1	—	1	—	—	
Ironers	—	7	—	—	—	2	
Ironmongers	—	—	—	—	1	—	
Insurance Agents	1	—	—	—	1	—	
Lodging-House Keeper	—	—	—	1	—	—	
Labourers	4	—	5	—	2	—	
Laundresses	—	3	—	—	—	—	
Milkmen	—	—	2	—	—	—	
Married Women	—	16	—	8	—	20	
Marine Store Dealer	—	—	—	—	1	—	
Newsvendors	—	—	1	—	1	—	
Potmen	1	—	1	—	—	—	
Printers	—	—	1	—	1	—	
Publicans	3	—	2	—	3	—	
Painters	8	—	4	—	1	—	
Postmen	1	—	—	—	1	—	
Porters (Shop)	1	—	1	—	1	—	
,, (Luggage)	—	—	—	—	1	—	
,, (Hotel)	—	—	—	—	1	—	
,, (Wine Merchants) ...	—	—	—	—	1	—	
Plasterers	1	—	1	—	—	—	
Police Pensioners	1	—	—	—	—	—	
Picture Frame Makers	1	—	—	—	1	—	
Railway Men—							
Blacksmiths	2	—	—	—	—	—	
Carriage Cleaners	—	—	—	—	1	—	
Drilling Machinists	—	—	—	—	1	—	
Engine Drivers	1	—	—	—	—	—	
French Polishers	—	—	1	—	—	—	
Fitters	2	—	—	—	—	—	
Labourers	1	—	—	—	—	—	
Machinist (Carriage Shop) ...	1	—	—	—	—	—	
Painters...	1	—	—	—	—	—	
Porters	1	—	—	—	1	—	
Planer	—	—	—	—	1	—	
Rivetter	—	—	—	—	1	—	
Turners	1	—	—	—	—	—	
Waggon Makers	1	—	—	—	—	—	
Salvation Army Officers ...	1	1	—	—	—	—	
Shoemakers	2	—	1	—	—	—	
Sweet Shop Keeper	—	—	—	—	—	1	
Solicitors	—	—	—	—	2	—	
School Teachers	—	2	—	—	1	1	
Sign Writers	—	—	—	—	1	—	
Street Musician	1	—	—	—	—	—	
Tennis Marker	—	—	—	—	1	—	
Tailors	2	1	—	—	3	—	
Tram Conductors	—	—	—	—	1	—	
Valet	—	—	—	—	1	—	
Verger	1	—	—	—	—	—	
Veterinary Surgeon	—	—	—	—	1	—	
Wheelwrights	—	—	—	—	1	—	
Washerwomen	—	2	—	—	—	—	
No Occupation	5	12	—	4	13	26	
Unknown	7	6	1	—	2	—	

RHEUMATIC FEVER.

During 1902, the number of deaths registered as caused by this disease was 5. The number of patients admitted to the County Hospital suffering from this disease was as follows :—

Year.	Acute Rheumatism.	Sub-Acute Rheumatism.	Chronic Rheumatism.
1899	24	4	7
1900	60	8	3
1901	44	11	9
1902	47	12	9

SYPHILIS.

During 1902, the deaths of four male and three female infants under one year of age, and of two men and three women, were returned as due to this cause. The death returns under this head are immensely understated.

ALCOHOLISM.

During 1902, nine deaths of men and four of women were returned as caused by alcoholism or delirium tremens. The deaths do not represent more than a very minute proportion of the mortality really caused by alcoholism. As a rule, the real cause is concealed behind such headings as disease of the brain or spinal cord, apoplexy, heart disease, liver disease, hœmatemesis (vomiting of blood), cirrhosis of liver, gout, Bright's disease, which, with many other diseases, are caused to a very large extent by chronic alcoholic excess.

Forty-one deaths (25 of men and 16 of women) were caused by cirrhosis of the liver, a disease which is almost solely produced by intemperance. The following table shows the relative number of deaths caused by alcoholism and cirrhosis of liver, by syphilis, and by enteric fever. The three former are diseases which represent the final wages of our two chief social sins, alcoholic excess and prostitution. Only a small fraction of the evil is stated by these figures. Alcoholism and venereal diseases cause annually a much larger number of deaths than the death certificates openly reveal. But the figures as they stand are sufficiently serious. They display an evil of great magnitude. The deaths caused by enteric fever are fully set out in the following table. Those caused by the other two causes of death are greatly understated. Even as stated, syphilis caused about an equal number, and alcoholic excess 3½ times as many deaths as enteric fever. Against the latter disease a constant war is waged, and it has declined to an enormous extent. Against alcoholism but little has been effected, and the figures show a tendency to increased rather than decreased mortality, which can scarcely be ascribed to diminished reticence of medical certificates. It may be hoped that the pressure of public opinion leading to a diminution of licensed houses, especially in the poorer districts of the town, may effect something in the next few years. I have preferred to speak above of alcoholism rather than of intemperance; for, as often stated in these reports, occasional drunkenness is less harmful to the victim's health than the frequent daily tippling, which may never make the victim unable to carry out his daily duties. There are strong reasons for believing that although drunkenness has diminished in late years, and there has consequently been a great gain to public decency and order, the amount of tippling has not diminished; while its evil consequences are insufficiently recognized.

Number of Deaths annually caused by

Year.	Alcoholic Drinks.				Total deaths due to Alcoholic Drinks.	Syphilis	Enteric Fever.
	Alcoholism.		Cirrhosis of Liver				
	Men.	Women.	Men.	Women.			
1896	4	9	14	9	36	15	14
1897	6	5	15	16	42	8	21
1898	8	8	20	19	55	15	18
1899	22	7	14	18	61	19	25
1900	7	7	22	18	54	22	12
1901	11	—	15	17	43	12	6
1902	9	4	25	16	54	12	13
	67	40	125	113			
Total for 7 years ...	107		238		345	103	109

CANCER.

The apparent increase of mortality from this disease, which the death returns show, gives a special importance to its statistics, especially when we remember that one out of every 15 or 16 deaths is due to Cancer. In the following table the chief headings under which deaths from Cancer occur are given :—

Registered Deaths from Cancer (Malignant Disease).

Seat of Primary Disease.	Sarcoma.		Carcinoma.		Malignant Disease or Cancer.		Total.
	M.	F.	M.	F.	M.	F.	
Head, Face, Eye, Orbit, Nose, Ear	—	1	1	1	3	—	6
Jaws	—	2	1	—	—	1	4
Mouth, Tongue, Lips	—	—	2	—	3	1	6
Neck, Throat, Tonsils, Larynx ..	—	—	1	—	3	—	4
Lung, Chest, Mediastinum ...	—	—	1	—	—	—	1
Œsophagus	—	—	—	—	1	—	1
Breast	—	—	—	9	2	11	22
Abdomen	—	—	—	—	—	6	6
Stomach and Pylorus	—	—	3	5	5	9	22
Liver and Gall Bladder	—	—	—	1	3	4	8
Peritoneum, Mesentery	—	—	—	—	1	1	2
Intestines (excluding Rectum) ...	—	—	—	1	6	7	14
Rectum	—	—	4	1	5	4	14
Ovary	—	1	—	—	—	3	4
Uterus	—	—	—	19	—	5	24
Pelvis, Kidney, Bladder, Prostate, Urethra	—	—	—	—	2	4	6
Groin, Leg, Foot	—	1	—	—	—	—	1
Parts unspecified	—	—	—	2	1	2	5
Total	—	5	13	39	35	58	150

In the three years, 1889-91, the average Death-rate from Cancer in Brighton was ·86; in 1898-1900 it was ·88; it is now 1·20 per 1,000 of population.

INQUESTS.

During 1902, 142 inquests were held and the following verdicts returned :—

NATURAL CAUSES		90
ACCIDENTAL—		
Drowning	3	
Suffocated, asleep with parents	9	
Burns	4	
Falls	14	
Tetanus following wound in leg	1	
Inattention at birth	3	
Injury whilst shunting	2	
Poisoning	1	
Scalds	1	
Suffocated whilst eating	1	
Fracture of ribs, &c. in boarding a tram car	1	
	—	40
SUICIDAL—		
Cut throat	1	
Poisoning	1	
Hanging	3	
Shooting	1	
	—	6
OPEN VERDICT—		
Found drowned	4	
Found dead	1	
	—	5
HOMICIDAL—		
Inattention at birth and criminal neglect of mother		1
	Total	142

B.

REPORT ON THE WORK OF THE MUNICIPAL HYGIENIC LABORATORY.

Active work in this laboratory commenced in November, 1897. The work in connection with it has increased to an almost embarrassing extent, as shewn by the following table :—

		1897-8. (14 months).	1899.	1900.	1901.	1902.
Widal-Grüber test for Typhoid Fever		164	153	95	88	103
Bacteriological Diagnosis of	Diphtheria ...	414	2033	2191	2962	2537
	Phthisis	21	47	86	125	169
	Other Diseases ...	2	—	—	—	—

Diphtheria.—The value of bacteriological diagnosis is shewn by the fact that although Diphtheria has been much less prevalent in 1902 than in 1901, there is only a comparatively small reduction in the number of specimens examined.

These specimens were derived as follows :—

	Positive.	Negative.	Doubtful.	Total.
Town Specimens	266	725	81	1072
Hospital Specimens	440	820	205	1465
	706	1545	286	2537

Of the Hospital specimens, 387 were taken from diphtheritic patients on admission, 951 from patients after admission or during convalescence. 127 specimens were taken from scarlatinal patients on admission, in order to detect cases in which there was co-existent Diphtheria.

Of the Town specimens, 110 were taken from patients at the Children's Hospital, 21 shewing Diphtheria bacilli. During April and May, routine specimens were sent from all in-patients in this Hospital, 63 specimens in all, of which six shewed Diphtheria bacilli (two of these clinical cases). In October, 37 specimens were taken, of which 12 shewed Diphtheria bacilli; six of these were "contact" cases, showing no clinical evidence of Diphtheria. No further cases occurred after the discovery of these.

For Phthisis and Typhoid Fever see the preceding tables. It is satisfactory to note that the facilities offered to medical practitioners for the examination of sputa are being more generally utilized, as the successful treatment of this disease depends upon its early recognition.

Water Analyses.—During 1902 quantitative analyses have been periodically made of the water from all the sources from which Brighton is supplied, viz. :—

Well.	*No. of Samples.*
Goldstone	52
Lewes Road	14
Shoreham	13
Patcham	14
Mile Oak	13
	106

C.—BOROUGH SANATORIUM.

Number of Patients during 1902.

DISEASE.	Remaining in the Hospital on Dec. 31st, 1901.	Admitted during 1902.	Total number treated during 1902.	Number discharged during 1902.	Number who have died in the Hospital during 1902.	Remaining under treatment on Dec. 31st, 1902.
Scarlet Fever...	18	127	145	134	1	10
Enteric Fever...	5	35	40	26	6	8
Measles ...	—	4	4	3	1	—
Diphtheria ...	49	387	436	367	23	46
Small Pox and Contacts ...	—	10	10	10*	—	—
Phthisis ...	—	25	25	19	1	5
Other Diseases	—	4	4	4	—	—
TOTALS ...	72	592	664	563	32	69

* Four cases of Small Pox and one Contact were transferred to the Small Pox Hospital at Fulking.

Of the above patients, twenty-nine were admitted from the Warren Farm and one from Falmer.

The total also includes two of Scarlet Fever and one of Diphtheria among the staff.

The following table gives the number of patients for whom payment was claimed, and the amount claimed in each case.

By whom Payable.	Number of Patients.	Amount Payable. £ s. d.
Brighton Board of Guardians...	38	98 3 1
Private Patients...	21	181 0 5
Disinfection, and hire of van for Patients not removed to Sanatorium	—	4 18 9
		284 2 3

In addition to the above, 10 Small Pox patients and one Contact case have been treated at the Hospital at Fulking Grange, acquired by the Corporation in 1901. The purchase money of this property, including costs, was £2012 9s. 8d.; tenant's compensation, £26 0s. 7d.; alterations and repairs up to the end of December (not complete), £1439 14s. 6d.

The contract price for the alterations was £1524.

The property purchased by the Corporation consists of a private house containing 12 rooms, suitable for the administrative building of a Small Pox hospital, a barn, and 11a. 1r. 19p. of land. This land is let to a farmer, excepting one strip on which the hospital stands. The barn has been converted by alterations into an excellent pavilion for Small Pox patients. This consists of two wards, with an entrance lobby at each end and a nurse's duty room in the centre. Each ward measures 32 feet by 23 feet. The greatest height is 14ft. 9in., the least height is 9 feet. There is thus ample accommodation for 12 patients in the two wards. At the rear of this pavilion is a cement platform on which two Berthon huts are placed, giving accommodation when required for four additional patients.

The water supply of Fulking Grange is rain-water. New underground cement tanks have been constructed, bringing up the total storage accommodation to 29,474 gallons, exclusive of the fire tank. In addition to six portable fire extincteurs, there is a storage tank for water for fire emergencies of 1,000 gallons, and two unions with hose attached in each ward. The wards are warmed by hot water radiators, two in each ward. The wards are well lit and have ample through ventilation. There are no houses within a quarter of a mile of the hospital, which is on the crest of the Downs. The cost of the hospital and of the alterations to it has been borne out of the current rates.

The following statement is supplied by the Borough Accountant :—

EXPENDITURE.

Hospitals—Sanatorium, Bear Road.

	£	s.	d.	£	s.	d.	£	s.	d.
Salaries and Wages—									
Medical Officer	150	0	0						
Medical Officer's Assistant ...	21	0	0						
Matron	79	19	0						
Nurses and Servants	1000	1	2						
Labour (gardens)	124	8	2						
				1375	8	4			
Repairs (including exterior and interior painting)				309	13	10			
Laundry—new washing machine and fixing ...				228	18	10			
Fuel				499	16	10			
Electricity, £128 15s. 8d. ; gas, £127 18s. 4d. ...				256	14	0			
Water				50	0	0			
Sundry household goods, furniture and repairs ...				245	11	1			
Provisions				1510	12	2			
Drugs and medical sundries				387	13	4			
Surgeon's fees (special cases)				18	18	0			
Hire of Institution Nurses				16	7	0			
Hospital garments, linen, flannel and drapery goods, including uniforms for matron, dresses for nurses and servants				144	0	0			
Printing, advertising, stationery and stamps ...				56	6	4			
Rates, taxes and insurance				158	15	4			
Travelling expenses, cab hire, carriage, telegrams and sundries				24	16	6			
Garden sundries and manure				7	11	6			
							5291	3	1

Stourfield Park Sanatorium, Pokesdown.

	£	s.	d.
Maintenance of patients	258	4	7

The Grange, Fulking.

				£	s.	d.	£	s.	d.
Purchase money (including costs)				2012	9	8			
Tenant's compensation—*less* amount received for sale of crops, &c.				26	0	7			
Alterations and repairs*				1439	14	6			
Wages—									
Caretaker	£33	12	0						
Nurses	24	8	0						
				58	0	0			
Furniture and sundry household goods				19	10	10			
Provisions				40	9	6			
Fuel				28	18	4			
Cartage, cab-hire and miscellaneous expenses				42	5	1			
Rates and taxes				5	8	2			
							3672	16	8

* Not completed at end of 1902.

The items in the accounts for the Sanatorium and for Fulking Grange to some extent overlap. The Sanatorium accounts include heavy items for new furniture, for repainting pavilions, and for repairs to the administrative buildings and other alterations; also £228 for a new washing machine for the laundry. The total number of weeks spent by all the patients in the Sanatorium during 1902 was 2,890. It should be noted that there is included in the above amount, the cost of disinfection by steam for the sanitary work of the entire town. It has been found more economical to continue to carry on this work (which has greatly increased since disinfection for phthisis was begun) at the Sanatorium, rather than start an additional establishment for this purpose.

D.—SANITARY WORK OF THE YEAR.

SANITARY INSPECTIONS.

In the following tables, prepared by Mr. Skinner, the Chief Sanitary Inspector, the work of the Sanitary Department is stated, so far as it can be given in tabular form. It will be seen that 13,814 houses were visited in the course of house-to-house inspection, as compared with 10,286 in 1901. This, however, does not represent the total number of houses visited during the year. Apart from house-to-house inspection, a large proportion of the time of the inspectors is occupied in attending to complaints received from householders in every part of the town. During last year 941 such complaints received attention, as compared with 1,018 in the previous year. In addition, 7,531 visits were made for purposes of investigation and disinfection after cases of infectious disease. In each of these cases it is the practice to take the opportunity of making a sanitary examination of the houses visited. 3,209 visits were made during the year to Slaughter-Houses, 33 to Cowsheds, 600 to Bakehouses, 2,050 to Dairies and Provision Shops. The Common Lodging-houses have received 198 visits. In 56 houses the soil-pipe has been tested by volatile tests ; and 428 drains have been opened for examination. For particulars of the work see the table on the next page.

Inspections during 1902.

	1st Qrtr.	2nd Qrtr.	3rd Qrtr.	4th Qrtr.	Totals for 1902.	Totals for 1901.
Number of Streets Inspected	59	78	70	98	305	326
,, Houses and other Premises Inspected...	3524	3964	2984	3342	13814	10286
Number of Complaints attended to	206	247	288	200	941	1018
,, Visits to Slaughter Houses ...	794	794	823	798	3209	3060
,, Visits to Cowsheds	5	10	11	7	33	21
,, ,, Bakehouses	—	—	—	—	600	396
,, ,, Dairies and Provision Shops	378	462	607	603	2050	1697
Number of Day Visits to Common Lodging-Houses	37	28	28	33	126	112
Number of Night Visits to ditto	15	—	39	18	72	51
,, Visits in respect of Sickness ...	1540	1419	1067	1808	5834	3174
,, Visits to Disinfect Rooms... ...	242	219	179	306	946	1082
,, Visits for Removal of Bedding ...	183	181	134	253	751	824
,, Drains tested by Volatile Test ...	13	12	18	13	56	122
,, Drains Opened for Examination...	84	119	126	99	428	454
,, Visits for Sundry Purposes ...	1315	1205	1358	999	4877	6965
,, Visits to look up Notices Served...	1099	1907	1372	1881	6259	7587
,, Attendances at Police Court ...	2	1	7	5	15	44
,, Samples Collected for Analysis ...	130	113	100	159	502	502
,, Inspections of Stables	305	351	273	412	1341	1451
,, Wastes of Water reported... ...	35	32	33	40	140	166
,, Letters sent to Schools and Public Library	1050	978	984	1040	4052	2272
Meteorological Observations taken	169	169	169	182	649	676
Visits to Schools	45	47	30	61	183	319
Number of Visits under Factory & Workshops and Shop Hours Acts	—	—	—	—	2792	3467
Drains flushed	21	4	6	5	36	—
Circulars delivered *re* Diarrhœa	—	—	10000	—	10000	10000
Markets Committee, 1 Inspector	—	—	6 dys	—	6 dys	14 dys
Visits to Houses Let in Lodgings (Day) ...	83	25	19	73	200	163
Smoke Observations	3	3	2	7	15	47
Contagious Diseases (Animals) Act	9	6	10	7	32	81
Circulars delivered *re* Vaccination	28000	—	—	—	28000	—
Visits to Ice Cream Vendors	—	24	23	—	47	47

The Sanitary Inspections enumerated in the above Table have been followed by the serving of the notices given in the following Tables. A very large proportion of the work is done on the strength of verbal recommendations or preliminary " warning " notices.

Notices served on Owners during 1902.

Nature of Notice.	Warning and Verbal Notices.			Final Notices.		Total Number of Notices on owners complied with.
	Number served.	Number complied with before service of final notice.	Number reported for final notice.	Number served.	Number complied with.	
To drain into sewer and fill up cesspools	7	1	6	5	5	6
To relay drain and fill up cesspools	3	3	—	3	3	6
To relay drain	337	237	100	104	103	340
To repair drain and soil pipe ...	146	80	66	78	76	156
To trap drain	83	41	42	45	44	85
To cleanse & whitewash rooms	451	247	204	202	198	445
To clear drain or soil pipe ...	92	30	62	58	58	88
To clear, repair or cleanse closet, or repair flushing apparatus or pan	341	22	319	349	347	369
To repave yard or scullery ...	326	132	194	184	178	310
To abate other nuisances ...	984	502	482	477	451	953
To provide covered dust bins ...	603	248	355	375	341	589
To provide premises with a proper water supply	3	2	1	1	1	3
To cleanse premises and remove foul accumulations	33	29	4	1	1	30
To provide manure receptacles	19	4	15	14	14	18
To fill up underground manure pits	17	6	11	8	8	14
To provide W.C. accommodation	4	3	1	3	3	6
To lay on water to closet ...	6	5	1	3	3	8
To alter water pipes	10	3	7	—	—	3
To pave and drain stables ...	18	12	6	5	5	17
To pave yard or window area...	4	1	3	—	—	1
To cleanse & whitewash workrooms	7	6	1	—	—	6
To provide separate W.C. accommodation	2	1	1	1	1	2
Totals	3496	1615	1881	1916	1840	3455

Notices served on Occupiers during 1902.

Nature of Notice.	Warning and Verbal Notices.			Final Notices.		Total number of notices on occupiers complied with.
	Number served.	Number complied with before service of final notice.	Number reported for final notice.	Number served.	Number complied with.	
To relay drain	1	—	1	—	—	—
To trap drain	4	3	1	—	—	3
To cleanse and white-wash rooms	65	45	20	2	1	46
To clear drain or soil pipe ...	26	18	8	2	2	20
To clear, repair or cleanse closet, or repair flushing apparatus or pan	277	159	118	67	65	224
To abate other nuisances ...	46	38	8	5	5	43
To discontinue keeping animals so as to be a nuisance	151	62	89	85	84	146
To abate overcrowding	105	41	64	55	49	90
To abate smoke nuisance ...	11	9	2	2	2	11
Cleanse and white-wash bake-houses	28	26	2	14	14	40
Cleanse and white-wash work-rooms	31	28	3	2	2	30
To discontinue to let or occupy cellar dwellings	4	4	0	—	—	4
Cleanse premises and remove all foul accumulations	301	178	123	125	120	298
To provide covered dust bins ...	4	3	1	—	—	3
To repave yard or scullery ...	8	5	3	—	—	5
To lay on water to closets ...	2	2	—	—	—	2
Totals	1064	621	443	359	344	965
Total of notices served on owners	3496	1615	1881	1916	1840	3455
Total notices served	4560	2236	2324	2275	2184	4420

The increased readiness with which notices are complied with is shewn by the fact that no summonses were required during the year for non-compliance with sanitary notices.

COMMON LODGING HOUSES.

Seven are at present registered, having accommodation for 245 lodgers. The bye-laws have been carried out strictly during the past year.

HOUSES LET IN LODGINGS.

Bye-laws for houses of a rateable value not exceeding £26, and having three families in them if the landlord lives in the house, or two if the landlord does not live in the house, were confirmed by the Local Government Board on 13th July, 1898, and 75 such houses are now on the register, as compared with 66 at the end of 1901.

REMOVAL OF HOUSE REFUSE.

In accordance with the arrangement made with the Borough Surveyor's Department, the following information has been supplied to me and the necessary notices served in each instance :—

Refused to have refuse removed	None.
No answer on dustmen calling	None.
No bins, defective bins, &c.	146.
Other sanitary defects	None.

REVIEW OF THE ACTION OF THE COUNCIL IN CONNECTION WITH HOUSING SCHEMES.

The following tabular statements are based on figures furnished by the the Borough Accountant. The gross cost of the Spa Street Area is up to December 31st, 1902, and does not include certain small items both on the creditor and debtor side of the account. As it is not proposed to sell the site, the nett cost cannot be given :—

	Total gross cost.	Amount received for re-sale of land and materials and for rent.	Nett cost.
	£	£	£
Little St. James's Street Area ...	17,388	5,005	12,388
Cumberland Place Area	49,992	16,038	33,964
Ewart Street site in connection with Cumberland Place Area...	4,000	4,000	*Nil.*
Spa Street Area	30,699	?	?

	Little St. James's Street Area.	Cumberland Place Area.	Spa Street Area.
Number of persons displaced ...	329	1,104	725*
Number of persons re-housed ...	150	1,113	725
Area in square yards	7,223	14,927	8,110
Date Scheme was passed by Council	Sept. 26th. 1889	Oct. 30th, 1890	Oct. 30th, 1898
Approximate nett cost of Scheme	£12,383	£33,954	Cannot be stated
Cost per person displaced ...	£37 12s. 9d.	£30 15s. 0d.	do.
Cost per square yard of Area ...	£1 14s. 3d.	£2 5s. 6d.	do.

* Of this number, 377 will be re-housed in the Area : 168 have been provided for in the 28 houses in St. Helen's Road and 180 in the 30 houses in Dewé Road.

Under Part III. of the Housing of the Working Classes Act, the Corporation have built 28 houses on the Elm Grove site and 30 houses on the Dewe Road site. These two sites were presented to the Corporation in 1897. Accommodation for 348 persons has thus been provided, and in the Provisional Order made in connection with the Spa Street scheme, this accommodation has been regarded as an instalment towards the re-housing of the 725 displaced from the

Spa Street area. There remain, therefore, 377 persons to be housed on the cleared Spa Street area. When this accommodation has been provided, there will have been re-housed in connection with the three schemes of the Corporation 1,988 persons. If to this be added the occupants of the 174 houses, which during the last ten or eleven years have been put into thorough repair after having been condemned under Part II. of the Housing of the Working Classes Act (reckoning six persons to a house), 3,032, or 1 in 40 of the entire population, has been re-housed owing to the action of the Corporation.

HOUSES BUILT UNDER PART III.

The 28 houses built in St. Helen's Road by the Corporation were described in my annual report for 1899, p. 46. Each of these is let at a rental of 7s. 6d. a house. The following statement by the Borough Accountant shows the state of the account on these houses:—

Working Class Dwellings, St. Helen's Road.

Income and Expenditure—Year ended 31st December, 1902.

Dr. Expenditure.	£	s.	d.	Income. Cr.	£	s.	d.
Rates and Taxes	133	16	4	Rents	539	19	11
Repairs	24	18	0				
Fire Insurance	5	5	0				
Commission for Collecting Rents	13	9	11				
Loan Charges	373	5	0	Deficiency	10	14	4
	£550	14	3		£550	14	3

In 1901, there was a balance of £8 12s. 10d. on the creditor side of the above account.

The above 28 houses were built at a capital cost of £7,879 11s. 7d., or £281 8s. 3d. a house. This includes sewering, making up of road, clerk of works, &c., as well as cost of erection of the houses.

Dewé Road Houses.—The amount of the contract for 30 houses in this road, £5,990. The total expenditure on these houses, including all expenses, except paving, which is not yet completed, was £6,438 17s. 2d.

Each house has a frontage of 15 feet, and contains four rooms. The contents of the rooms are as follows:—

Front room, ground floor	943	cubic feet.
Back " " "	1,230	" "
Front " first "	1,145	" "
Back " " "	938	" "

There is no separate scullery or attic, the kitchen serving as scullery. Each room is 8 ft. 6 in. high; each house has a garden at the rear, 39 ft. long. No drains pass under the houses. These houses are let at a rental of 6s. 6d.

The following statement shews the current account since the houses were first ocuupied :—

Working Class Dwellings, Dewe Road.

Income and Expenditure from 4th August to 31st December, 1902.

Dr. Expenditure.	£	s.	d.	Income. Cr.	£	s.	d.
Rates and Taxes	31	3	5	Rents	187	10	6
Repairs	0	12	9				
Printing	0	4	0				
Fees to Board of Agriculture, *re* altered apportionment of tithe rent charge	2	16	0				
Commission for collecting rents	7	10	10				
Loan Charges (proportion)	127	14	7				
	170	1	7				
Balance	17	8	11				
	£187	10	6		£187	10	6

NOTE.—No charge for proportion property tax is included in above statement.

ACTION UNDER PART II.

One house in Chapel Street has been condemned during 1902, closed, put into repair, and again let.

FACTORIES, WORKSHOPS, WORKPLACES AND SHOPS.

The total number of visits to the above for the purpose of carrying out the provisions of the Factory and Workshop Act, and Shop Hours, &c., Acts, was 2,744.

Of these, 1,352 were for the inspection and registration of premises, the remainder being for the purpose of looking up works ordered, the serving of notices and affixing of forms, &c.

A new Factory and Workshops Act, passed in 1901, which came into operation on January 1st, 1902, makes considerable alterations and additions to the duties of the Town Council.

The Medical Officer of Health is now required to report specifically on the administration of the Act in Workshops and Workplaces, so far as the matters under the charge of the Council are concerned, and to send a copy of his annual report to the Secretary of State. A subsequent Memorandum from the Home Office directs that the report should specially deal with the provisions as to sanitation, bakehouses and homework.

By Section 131 the Local Authority is directed to keep a register of all workshops situated within their district. Such a register has been kept in Brighton since 1883, but the form of the register was cumbersome and it was difficult to keep owing to the constant changes in occupation and in the nature of the work carried on.

To keep the register up to date meant constant erasures and fresh entries. The above difficulties have been met by the adoption of the card system, which gives a simple and complete register. When important alterations or change of occupancy occur, the old card is destroyed and a new one made out. Thus the register can be easily kept up to date.

By Section 127 of the Acts, H.M. Inspector for the district is directed to report to the Local Authority the particulars in respect of new workshops which have been formally reported to him by the occupiers. In accordance with above Section, 38 new workshops have been reported by H.M. Inspector.

By Section 133, if the Medical Officer of Health finds any woman, young person or child, employed in a workshop in which no abstract of the Act is posted up, it is his duty to inform the District Inspector of Factories of these in writing.

In accordance with the above Section, 35 such workshops have been reported to H.M. Inspector.

Under Sections 2, 3, 7, and 8, the Local Authority is reponsible for the sanitary condition, especially as to cleanliness, ventilation, drainage, and air space, of Workshops and Workplaces; while the Factory Inspector is responsible for the sanitary condition of Factories. For the purpose of more effectually dealing with sanitation, Section 91 of the Public Health Act is extended and supplemented by additional provisions in the Factory Act. The defects found coming under these headings are enumerated on page 99.

The most important additions to Section 91 of the Public Health Act are, (1st) That in every room in a workshop sufficient ventilation must be provided and sufficient ventilation maintained. (2nd) That in every workshop in which any process is carried on which renders the floor liable to be wet to such an extent that the wet is capable of being removed by drainage, adequate means shall be taken for draining off the wet.

By Section 5, if H.M. Inspector finds in a factory or workshop any act, neglect or default relating to sanitary defects, water supply, or nuisances, which are remediable under the Public Health Acts, he is directed to give notice of such in writing to the Local Authority, who must take such action as is necessary to enforce the law, and inform the inspector of the proceedings taken. If proceedings are not taken within a month H.M. Inspector may take proceedings and recover the expenses from the Council. Such legal proceedings must be taken within three months of the offence coming to the knowledge of the Inspector (Section 146).

Under the above Section 5, nine reports have been received and the proceedings taken reported to H.M. Inspector.

The Secretary of State has power under the Act to make special orders. Two already made are important to Local Authorities, one dated 11th of December, 1901, relating to homework, and the other dated January 17th, 1902, increasing from 250 to 400 the cubic feet of space to be provided in a workshop used as a sleeping place.

Means of Escape in case of Fire.

The chief requirement of the new Factory Act is that new factories and workshops must, if more than 40 persons are employed, have a certificate from the Local Authority that they are provided with reasonable means of escape in case of fire for the persons employed therein.

In the case of factories built before 1892, and workshops built before 1896, the Local Authority are directed to ascertain if means of escape are provided, and to order such where necessary. The doors of all new work-rooms, in which more than ten persons are employed, must be made to open outwards.

A register of factories and workshops, in which more than 40 persons are employed, is now kept by the Town Clerk, and particulars have been entered in this by Inspector Mills respecting 10 factories and 10 workshops. The total number of persons employed on these premises was 3,545. The subsequent inspection of these premises rests with the Borough Surveyor.

During 1902, four new work-rooms, in which more than 10 persons were employed, were found to have been constructed with the doors opening inwards, and were altered at the request of Inspector Mills.

In two other cases the staircase was found obstructed by inflammable material. Bye-laws under Section 15 of the Act are required to meet this contingency.

Factories.

Factories include not only places in which mechanical power is used, but, in addition, certain industries, such as bookbinding and letterpress printing, in which mechanical power is not used.

The duties of Local Authorities in regard to factories are confined to the means of escape in case of fire, the provision of suitable and sufficient sanitary conveniences, and special duties relating to domestic factories.

Of the 220 factories in Brighton, 98 have been inspected during the year and particulars entered in the new register. The sanitary defects found are included in the general list on page 99.

Printing works and steam laundries employ a larger number of persons in Brighton than any other single class of factory. Other important factories in the town are the Railway works, mineral water works, breweries, and the manufacture of electrical appliances.

Workshops.

These may be classified as under, and vary somewhat as to the amount of supervision exercised by H.M. Inspector, and the Inspector of the Local Authority. (*a*) Adult Male Workshops in which men only are employed. (*b*) Workshops employing women and persons under the age of 18 years, whom the law protects as to hours of labour. (*c*) "Domestic Workshops" in which the only persons employed are members of the family dwelling in the place used as a workshop. (*d*) Tenement Workshops, where men working on their own account, with or without assistants. hire a sitting or stall in a common workshop.

There are 2.320 workshops in Brighton, and 980 inspections have been made in these during 1902, and particulars in respect of them entered in the new register. The most extensive workshop-industry in Brighton is the making and cleaning of wearing apparel, the principal trades concerned being dressmaking, millinery, tailoring and laundries. Other important workshops are those of builders, coachmakers and bakers. The largest proportion of the time of Inspector Mills, during 1902, has been taken up with the inspection of bakehouses (see page 100).

There must be in every workshop and workplace at least 250 cubic feet of air space for each person during the day, and 400 feet during overtime. The Act also requires that a notice shall be kept exhibited in each workshop stating the number of persons who may be employed.

These notices were formally supplied by us on cards to be hung in the workroom, but the system now adopted is to fill the figures in on the space provided on the new abstracts. If this has already been done by the occupier, the inspector ascertains if the figures are correct and signs them as having been measured by him.

During the year, 202 workrooms have been measured, making a total of 1,289 measured since the passing of the Act of 1895.

Section 74 empowers H.M. Factory Inspector to require the provision of mechanical ventilation in workshops where dust, gas or other impurities are generated and inhaled by the workers to an injurious extent.

Several cases of illness, traceable to the dust produced while carrying on the wool and hair carding processes in upholstery and bedding works in the town, having come to my notice, I sent the following letter to the 16 chief upholstery establishments in the town :—

> "April 15th, 1902.
>
> "DEAR SIR,—My attention has been forcibly drawn during the last few months to cases of Consumption, as well as of Bronchitis and Asthma, which appear to have been caused by the frequent inhalation of the dust produced by wool and hair carding in connection with upholstery and bedding works. There can be no doubt that this is a serious evil, and as it is an evil which can be entirely removed by efficient measures, I venture to appeal to you to co-operate with me in adopting measures for the safeguarding of the health of your work-people who are employed in this particular work.

"The most efficient measure is the provision of ventilating fans to divert the dust from the workmen into a tube. In some instances, owing to the absence of motive power, it may be difficult to carry out this recommendation, and in other instances delay in carrying it out may, from various causes, be involved.

"I therefore beg to urge upon you the desirability of providing for your men, while employed in carding, an efficient respirator, of which there are various forms in the market. This, I believe, has already been done in one or two instances, and has proved to be most beneficial.

"Trusting that my recommendation may meet with your approval,

"I am,
"Yours very faithfully,
"ARTHUR NEWSHOLME,
"Medical Officer of Health."

At the same time H.M. Inspector's attention was drawn to the evil, and in consequence, in two instances where power was used, fans were provided. In other instances respirators have been provided, and in several workshops the men themselves now tie handkerchiefs over their mouths when carrying out this dusty work.

The following sanitary defects have been found in the course of Inspector Mills' inspections during the year (omitting special work in bakehouses). Notices to remedy these have been well complied with at the present time, only six being outstanding :—

Bakehouses requiring cleansing and whitewashing	86
Workrooms requiring cleansing and whitewashing	47
,, badly ventilated	21
,, overcrowded	13
,, improperly warmed	4
,, dilapidated	4
Gas stoves with defective ventilation	4
,, ,, ,, fittings	2
Closets foul	30
,, choked	5
,, defective	17
,, with flushing apparatus defective	18
,, without ventilation	4
,, opening into workroom	2
Drains defective	23
,, into cesspool	2
,, choked	4
,, untrapped	6
,, traps choked and foul	8
,, ,, in bakehouse	3
Urinals foul and defective	6

Premises without w.c. accommodation	5
,, ,, separate w.c. accommodation	3
,, foul and dirty	12
,, with foul accumulations	9
,, without dustbins	6
Soil pipe defective or without ventilation	5
Lavatory basins and waste pipes defective	9
Paving of floors and yards defective	26
Roofs and rain water pipes defective	5
Animals kept in a dirty state	5
Encroachment on open space	3
Workrooms over stables without ceiling	1
Lead workers' workshops without washing conveniences	2
	400

Workplaces.

Though not defined in the Act of 1901, it has been held on appeal that the word is not to be limited to places where something is being manufactured or made, but includes any "place where work is done permanently, and where people assemble together to do work permanently of some kind or other." In Brighton these have not yet been separately enumerated, or regularly inspected as "workplaces," but this will be begun during 1903. The number of workplaces in the town is very large, the most numerous being restaurants, the kitchens of which come within the meaning of the term "Workplace."

Homework.

Sections 107 to 110 give power to the Local Authority to prevent certain classes of homework being done in unwholesome or infected dwellings.

The only trades at present represented in Brighton who employ outworkers in the classes of work scheduled by the Secretary of State for special regulations, are the makers of wearing apparel and upholsterers.

A printed circular containing a copy of Sections 107 to 110 and the Secretary of State's Order, together with the official form for entering the names and addresses of outworkers, was sent to all the firms who were known to give out work to be done at home.

44 Lists have been received in accordance with the requirements of the Act in February and August, respectively. These have chiefly come from makers of wearing apparel, the total number of outworkers given being 480. This does not represent the full number of outworkers, as many of the outworkers employ several others who work with them, though the majority work by themselves.

Most of these outworkers have been visited, and generally speaking the rooms have been found clean. Some have separate workrooms, others work in their living room, and a considerable number work in bedrooms.

During the past few years there has been in Brighton a considerable increase in the number of foreigners employed in the tailoring trades.

The Act helps in preventing wearing apparel being made or cleansed where there is infectious disease, but does not fully meet our requirements, and additional powers are being sought for in our Local Bill now before Parliament.

Bakehouses.

By Section 101 of the new Act it is provided that:—

(1) An underground bakehouse shall not be used as such unless it was so used at the passing of this Act.

(2) After January 1st, 1904, an underground bakehouse shall not be used unless certified by the Local Authority as suitable.

(3) An underground bakehouse is defined as any baking room, the surface of the floor of which is more than 3 feet below the surface of the footway of the adjoining street, or of the ground adjoining or nearest to the room; and a baking room is defined as any room used for baking or for any process incidental thereto.

(4) An underground bakehouse shall not be certified unless the Council is satisfied that it is suitable as regards construction, light, ventilation, and in all other respects.

(6) A bakehouse not complying with this Section is a workshop not kept in conformity with the Act.

(7) Provides that an occupier may appeal to the magistrates if refused a certificate by the Council.

(8) Relates to the apportionment of expenses for any structural alteration that may be required.

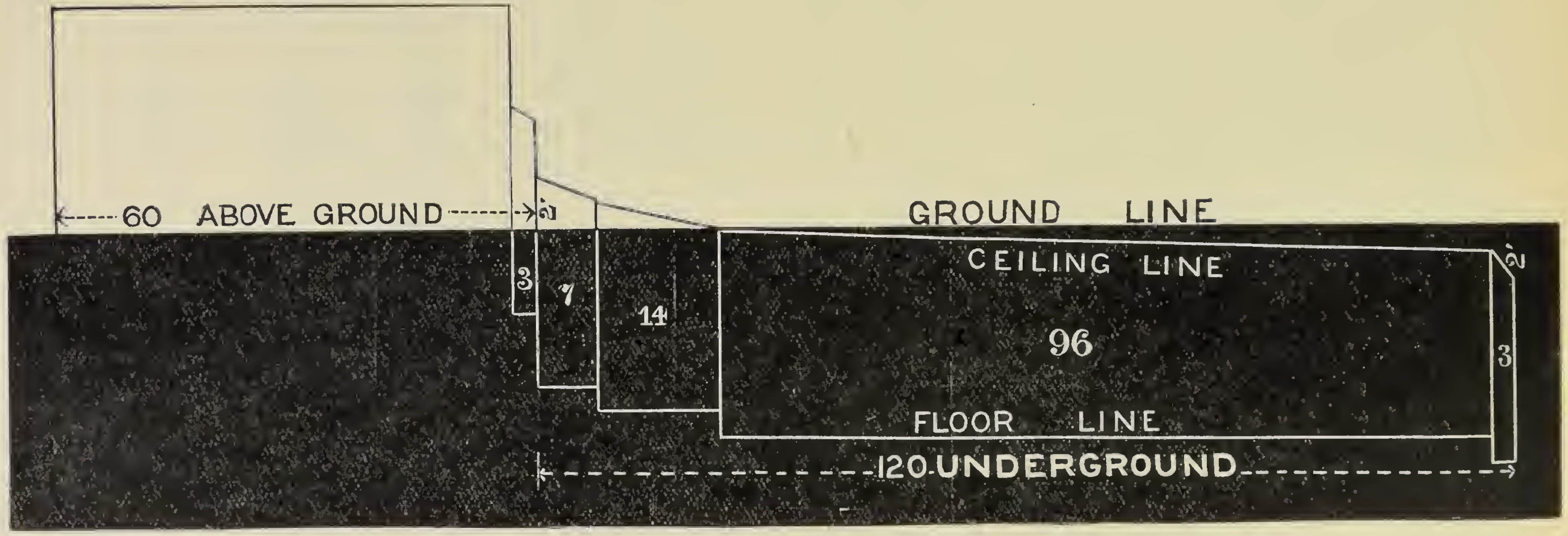
At the commencement of the year a circular containing all the Sections of the Act relating to bakehouses was sent to the occupiers of existing bakehouses, and to the owners of bakehouses not then used as such.

Twenty-six underground bakehouses visited and found disused were reported to the Council, and in accordance with the Act cannot be used again as bakehouses. Since then, two have been closed by enlargement of the Railway Terminus.

This leaves 187 bakehouses at present in occupation, of which 120 are underground. The large proportion underground is due to the hilly conformation of the town necessitating made-up roads and basements. The saving of ground space effected by the buildings of ovens under the road or yards has operated in the same direction.

The following diagram taken from my Annual Report of 1895 shows clearly the relative number of underground bakehouses, and in each instance the height of the ceiling above or below the ground level.

Thus there are three with the ceiling nearly 2 feet below, 96 with the ceiling 1 to 0 feet below, 14 with the ceiling on ground level or 1 foot above, seven with the ceiling 1 to 2 feet above the ground level, &c.


60 ABOVE GROUND
2
GROUND LINE
CEILING LINE
2
3
7
14
96
3
FLOOR LINE
120 UNDERGROUND

The procedure adopted in Brighton is for the occupier to make an application to the Town Clerk for a certificate. The Medical Officer of Health then inspects and reports to the Council and a copy of his report is sent to the occupier.

Each underground bakehouse is considered on its merits, but the giving of a certificate is not recommended in any instance in which certain general principles cannot be effectively enforced. These include (1) the provision of efficient through ventilation in the bakehouse from end to end, by means which will not admit dust to the interior of the bakehouse ; (2) the provision of adequate natural lighting ; (3) the immediate removal of all noxious fumes by special hoods over furnace doors ; (4) the addition to the height of low-pitched bakehouses, by excavation if necessary, and the excavation of back yards to ensure an open area at the rear ; (5) complete renovation of walls, ceilings, stairs and floors ; and (6) efficient provision for storage of provisions and of workmen's clothing, and arrangements for cleanliness.

So far, my reports as to underground bakehouses have come under three heads :—

1.—When the bakehouse is so badly constructed or situated that it appears impossible by structural alterations to make it fit, a report to this effect is made.

2.—When the case is one of extreme difficulty, but the bakehouse may possibly be capable of being rendered suitable, the occupier is advised to employ an architect to consult with me and Inspector Mills, and prepare plans and specifications.

3.—When the alterations required are less drastic, a summary of requirements is sent to the occupier. To further assist owners and occupiers, detailed drawings have been prepared by Inspector Mills, showing the best methods of altering windows, &c., in order to meet our requirements. The builder is then required to send in a specification stating in detail how he proposes to carry out the work. This plan is found to be very satisfactory to all parties, as it lessens the expense to the owners and enables the Council to get the work carried out expeditiously as well as satisfactorily in every detail.

When the works ordered are completed, I visit the bakehouse a second time, and if satisfied report to the Council to that effect, and the certificate is granted.

Up to December 31st, 1902, 44 applications for certificates had been received, leaving 76 to apply during the present year. The action taken in respect of these is given in the accompanying table, the numbers being in the order in which application for a certificate was made.

Underground Bakehouses.

No. in special Register.	1	2	3	
1	—	—	Requirements specified	Completed at a total cost of £140
2	—	—	ditto	Completed at a total cost of £1
3	—	—	ditto	Specification received and work in progress.
4	Certificate refused	—	—	—
5	—	—	Requirements specified	No action at time of report
6	—	—	ditto	Ditto
7	—	—	ditto	Specification received and work in progress
8	—	—	ditto	Completed at a total cost of £45
9	Certificate refused	—	—	Plans submitted for re-erection on the ground floor
10	—	—	Requirements specified	No action at time of report
11	—	—	ditto	Specification received and work in progress
12	—	—	Requirements specified	No action at time of report
13	—	—	ditto	Ditto
14	—	Architect to prepare plans	—	Plans and specification submitted
15	—	—	Requirements specified	No action at time of report
16	—	—	ditto	Specification received and work in progress
17	—	Architect to prepare plans	—	No action at time of report
18	—	—	Requirements specified	Completed at a total cost of £134
19	—	—	ditto	Specification being prepared
20	—	—	ditto	Completed at a cost of £57
21	—	Architect to prepare plans	—	No action at time of report
22	Certificate refused	—	—	
23	Certificate refused	—	—	Plans submitted and new bakehouse now in course of erection on ground floor
24	—	Architect to prepare plans	—	No action at time of report
25	—	—	Requirements specified	Specification received and work in progress
26	—	—	ditto	Specification received
27	—	—	ditto	Completed at a total cost of £49 10s.
28	—	Architect to prepare plans	—	Plans being prepared
29	—	—	Requirements specified	Specification received and work in progress
30	—	—	ditto	No action at time of report
31	Certificate refused	—	—	

Underground Bakehouses—Continued.

No. in special Register.	1	2	3	
32	—	—	Requirements specified	Specification received and work in progress
33	—	—	ditto	Ditto
34	—	Architect to prepare plans	—	Ditto
35	—	—	Requirements specified	Specification received
36	—	—	ditto	Specification received and work in progress
37	—	—	ditto	Specification being prepared
38	—	—	ditto	Specification received
39	—	—	ditto	Ditto
40	—	—	ditto	Specification received and work in progress
41	—	—	ditto	Specification received
42	—	—	ditto	No action at time of report
43	—	—	ditto	Specification being prepared
44	—	—	ditto	Completed at a total cost of £36

It will be seen from the preceding table that five were refused a certificate as coming under Class 1, six were reported under Class 2, thirty-three were reported under Class 3.

Of those refused a certificate, the owner of No. 23 has been able to meet the difficulty by re-building his bakehouse upon the ground floor at the rear of his premises, where there is sufficient space for this purpose. The owner of No. 9 has purchased the adjoining house and proposes to re-build upon the ground floor of these premises.

The total cost to the owners and occupiers of the first seven underground bakehouses altered under the Act was £463, or an average of £67 2s. 10d. each; but it is not expected that the average for those yet to be done will amount to quite so much, as many will be less difficult to deal with than the above.

The improvement in those which are completed is very marked, and the occupiers have expressed themselves as greatly pleased with the alterations.

The following particulars give the most important improvements effected in the seven underground bakehouses in which alterations have been completed :—

Increase in cubic capacity of bakehouse.			Increase of superficial area available for ventilation by means of windows and tubes.*		Increase of superficial area by which light is obtained from windows and pavement lights.	
	Original capacity in cubic ft.	New capacity in cubic ft.	Original area in square ft.	New area in square ft.	Original area in square ft.	New area in square ft.
No. 1	1000 ft.	1760 ft.	5 ft. 0 in.	18 ft. 0 in.	10 ft.	31 ft.
,, 2	1540 ft.	2590 ft.	6 ft. 0 in.	16 ft. 0 in.	12 ft.	33 ft.
,, 3	2500 ft.	2900 ft.	4 ft. 0 in.	15 ft. 0 in.	21 ft.	43 ft.
,, 18	2200 ft.	2370 ft.	10 ft. 6 in.	13 ft. 6 in.	10 ft.	17 ft.
,, 20	1776 ft.	1776 ft.	5 ft. 6 in.	8 ft. 0 in.	10 ft.	15 ft.
,, 27	1666 ft.	2200 ft.	1 ft 6 in.	23 ft. 0 in.	9 ft.	56 ft.
,, 44	1020 ft.	2320 ft.	2 ft. 6 in.	12 ft. 0 in.	5 ft.	23 ft.

* Not including additional ventilation by means of doors and staircases.

Thus the cubic capacity of these seven bakehouses has been increased 36 per cent. ; the special area available for ventilation has been increased 206 per cent. ; and the area admitting light has been increased 144 per cent.

THE PUBLIC ABATTOIR.

1902 is the eighth complete year of working the Abattoir.

The following statement, supplied by Inspector Cuckney, the superintendent of the Abattoir, gives the number of animals slaughtered in the public and private slaughter-houses at the Abattoir:—

Year.	In the Public Slaughter-Houses					In the Private Slaughter-Houses					Total.
	Beasts.	Calves.	Sheep.	Lambs.	Pigs.	Beasts.	Calves.	Sheep.	Lambs.	Pigs.	
1895	89	95	694	113	4182	187	71	1231	329	—	6991
1896	333	253	1549	201	4134	58	69	990	201	3391	11184
1897	589	384	3077	224	2442	16	69	1145	158	3950	12054
1898	1008	503	4114	458	2645	6	11	229	31	3322	12650
1899	1409	653	5650	491	3560	—	—	—	—	4621	16384
1900	1471	879	4977	374	4868	93	39	1049	206	4348	18304
1901	1530	866	5221	557	4440	57	40	1683	226	3025	17645
1902	2045	916	5834	596	5499	105	56	1743	268	3256	20318

The amount received in tolls since the opening of the Abattoir has been as follows:—November and December, 1894, £7 13s. 4d.; 1895, £102 15s. 4d.; 1896, £122 4s.; 1897, £115 7s. 7d.; 1898, £185 10s. 3d.; 1899, £243 9s. 4d.; 1900, £279 17s.; 1901, £271 13s. 10d.; 1902, £352 14s. 10d.

In addition to the above amounts there is also an income of £85 per annum from the rental of private slaughter-houses at the Abattoir.

UNSOUND MEAT SEIZED OR SURRENDERED DURING 1902.

Description.	Number of Animals.	Number condemned by Magistrate.	Number destroyed by arrangement with Owner.	Total weight in lbs.
A.—*At the Abattoir*—				
Bullocks (whole carcase) ...	7	—	7	4,080
,, (part of carcase) ...	287	—	287	4,429
Calves (whole carcase) ...	—	—	—	—
,, (part of carcase) ..	1	—	1	20
Sheep (whole carcase) ...	4	—	4	212
,, (part of carcase) ...	83	—	83	273
Pigs (whole carcase)... ...	26	—	26	2,852
,, (part of carcase) ...	668	—	668	3,058
B.—*In the Private Slaughter-houses and Shops*—				
Bullocks (whole carcase) ...	7	—	7	4,266
,, (part of carcase)	344	—	344	4,684
Calves (whole carcase) ..	2	—	2	136
,, (part of carcase) ...	2	—	2	22
Sheep (whole carcase) ...	6	—	6	528
,, (part of carcase) ...	137	—	137	381
Pigs (whole carcase)... ...	10	-	10	630
,, (part of carcase) ...	79	—	79	806
	1663	—	1663	26,377

The total amount of meat destroyed in connection with the Private Slaughter-houses and Shops in the Borough was 11,458 lbs.; at the Abattoir, 14,924 lbs.

Of the Beasts, one heifer and seven cows, and 235 parts of beasts were found to be tuberculous, five pigs and 188 parts of pigs were also found to be tuberculous.

OTHER FOODS SEIZED OR SURRENDERED DURING 1902.

35 bottles of cherries.
6 tins of pears.
1 tin of apricots.
14 tins of sardines.
2 bottles of red currants.
3 bottles of fruit syrup.
12½ bushels of pears.
35 crates and 10 half-seives of cherries.
3 cwts. and 28 lbs. of Algerian potatoes.
46½ bushels of black currants.
14½ bushels of red currants.
7 bunches of bananas.
8 boxes and 3 half-sieves of greengages.
6 gallons of apricots.

One provision merchant was fined 20s. and costs for exposing 13 tins of unsound sardines for sale.

SALE OF FOOD AND DRUGS ACTS.

Report by Inspector Cuckney—

Number of samples collected	502
,, ,, adulterated	86
,, prosecutions	8
,, convictions...	6
,, withdrawn	2
,, dismissed	0

Aggregate amount in fines	£8	10	0
Analyst's fees recovered	2	0	0
	£10	10	0

Cost of samples	£3	12	0¾
Cost of analyses	129	4	0
Analyst's salary...	50	0	0
Inspector's salary	12	0	0
Cost of assistance, postage and railway fares	12	17	1½
	207	13	2¼
Fines and Analyst's fees recovered ...	10	10	0
Net cost of working the Act ...	£197	3	2¼

The samples collected were :—Milk 345, Butter 65, Margarine 5, Lard 11, Cheese 11, Baking Powder 3, Condensed Milk 4, Golden Syrup 3, Jams 3, Mustard 5, Camphorated Oil 2, Seidlitz Powders 2, Spirit of Camphor 2, Nitrous Ether 2, Paregoric 2, Pepper 4, Sausages 3, Orange Marmalade 1, Self-raising Flour 2, German Yeast 3, Bloater Paste 2, Potted Ham 2, Potted Shrimps 1, Ground Ginger 1, Spirits 8, Cocoa 2, Cream 3, Infants Food 2, Chocolate Caramels 1, Mixed Sweets 2.

Four milksellers were fined amounts varying from 40s. to 10s. Two provision dealers were fined 40s. each for exposing Margarine for sale without being labelled as required by the Margarine Act.

Of the 502 samples collected during 1902, 173 were purchased as test samples, and in these instances no prosecution can follow until the result has been confirmed by a subsequent official sample. This method of procedure increases the apparent percentage of adulteration, although this increase does not necessarily indicate any real increase of the practice of adulteration. The percentage of prosecutions following detection of adulteration has declined, and this has increased the expense of administering the Act. The following table shews the percentage of test samples which were adulterated, the corresponding percentage for official samples in which legal proceedings can be taken, and the percentage of these cases in which such proceedings were taken. In considering these percentages, it is necessary to remember that the amount of adulteration of the milk has, in some instances, been so small, as to render it probable that legal proceedings would have been unsuccessful :—

	Milk.			Other Foods and Drugs.		
Year.	Number Examined.	Percentage Adulterated.	Percentage of Adulterated in which prosecution followed.	Number Examined.	Percentage Adulterated.	Percentage of Adulterated samples in which prosecution followed.
1897	32	3·1	—	26	—	—
1898	62	12·9	37·5	19	—	—
1899	62	9·7	66·7	10	—	—
1900	Test 40	20·0	—	145	2·8	—
	Official 207	14·0	55·3	117	13·7	62·5
1901	Test 40	22·5	—	174	4·6	—
	Official 220	28·6	11·1	68	38·8	14·3
1902	Test 52	16·1	—	111	9·9	—
	Official 283	19·7	10·7	46	19·6	22·2

E.—PUBLIC ANALYST'S REPORT.

Report on samples analysed under Sale of Food and Drugs Act during the year 1902.

Samples of	Number of samples.	Adulterated.	Percentage Adulterated.	Nature of Adulteration.
Milk	345	99	28·69	Deficient in fat, watered, preserved and coloured.
Butter	62	8	12·9	Foreign fat, excess of water, excess of preservative.
Milk-blended butter ...	3	—	—	
Cheese	11	—	—	
Lard	11	—	—	
Margarine ...	5	2	40	Excess of preservative.
Condensed milk	4	—	—	
Cream	3	2	66·6	Artificially thickened, excess of preservative.
Mustard... ..	5	—	—	
Pepper	4	—	—	
Ginger	1	—	—	
Jam	3	—	—	
Marmalade ...	1	—	—	
Golden syrup ...	3	—	—	
Sweets	3	—	—	
Cocoa	2	—	—	
Flour	2	—	—	
German yeast ...	3	2	66·6	Mixed with potato starch.
Baking powder...	4	—	—	
Spirits	8	—	—	
Drugs	10	—	—	
Miscellaneous ...	9	1	11·1	Excess of preservative.
Total ...	502	114	22·70	

During the past year 338 samples of whole milk and 7 samples of separated milk were examined. Of the samples of whole milk 30 or 8·87 per cent. failed to come up to the standards laid down by the Board of Agriculture in 1901. In the following table will be found set out the results for the three years, 1900, 1901 and 1902. It will be seen that there has been a steady and marked improvement in quality in the retail samples of milk, especially as regards the Sunday samples, in which the percentage of adulteration has fallen from 30·5 in 1900 to 6·89 in 1902, and the improvement in the average of fat, noticed in 1901, has been well maintained. The samples of milk from wholesale sources however, show a marked falling off in quality; no less than 13 samples falling below the standard as compared with one sample during the two previous years. This falling off in quality is partly to be ascribed to the fact that more samples have been taken from those sources which experience has shewn to be suspicious, but in spite of this I cannot help coming to the conclusion that there has been an actual falling off in the general quality of the milk as delivered in Brighton during the last year. This fact makes it all the more creditable that the retail vendors should have been able to maintain the, on the whole, very fair quality of their milk.

Total samples of whole milk collected, and proportion watered and skimmed in 1900, 1901 and 1902.

		Total Samples.	Below Standard.	Per cent. below Standard.	Average per cent. of Fat.
Weekday Samples	Wholesale ... 1900	80	1	1·25	4·30
	Wholesale ... 1901	97	0	0	3·96
	Wholesale ... 1902	153	13	8·49	3·42
	Retail ... 1900	119	25	21·08	3·30
	Retail ... 1901	98	12	12·24	3·60
	Retail ... 1902	115	13	11·30	3·55
Sunday Samples	Wholesale ... 1900	12	0	0	4·37
	Wholesale .. 1901	0	0	0	0·0
	Wholesale ... 1902	12	0	0	3·67
	Retail ... 1900	36	11	30·5	3·29
	Retail ... 1901	48	6	12·5	3·47
	Retail ... 1902	58	4	6·89	3 67

Turning to all forms of adulteration, the position is even less satisfactory than it was in 1901, for it will be seen in the following table that in spite of the diminution in watered and skimmed samples, yet the total percentage of samples adulterated is only slightly less than in 1901. This is due to the fact that the number of samples artificially coloured or artificially preserved show an increase over those coloured and preserved in the previous year. I think it is a significant fact that those forms of adulteration which have been followed by legal proceedings show a marked *decrease*, while those forms of adulteration which have not been followed by legal proceedings show an increase, and I would take this opportunity of pointing out that although the recommendation of the Department Committee on the use of preservatives and colouring matter in food have not been followed by any regulation giving legal force to them, yet prosecutions for adulteration with preservatives have been instituted in nearly all the great towns of England with almost uniform success. The use of preservatives and colouring matter in milk is a practice which is condemned as useless and often dangerous not only by the medical profession but also by some of the largest producers in the trade, and I cannot help thinking that a town holding the position that Brighton does as a health resort, should aim at a food supply above suspicion.

The figures for 1902 are as follows :—

Adulterated Samples, 1902.

		Total Samples.	*All Forms of Adulteration.	Percentage of Adulterated Samples.	Percent. of Adulterated Samples in 1901.
Week day Samples	Wholesale ...	153	21	13·72	1·03
	Retail... ...	115	49	42·60	41·83
Sunday Samples	Wholesale ...	12	0	0·00	0·00
	Retail... ...	58	26	44·82	52 08
	Separated Milk	7	3	42·85	100·00
	Total ...	345	99	28·69	29·03

* Colouring with annatto not included. At least 90 per cent. of retail samples of milk are coloured with annatto.

Condensed Milk.—Four samples of condensed milk were analysed during the year. The practice of recommending condensed milk for new-born infants is still carried out. Thus one of the largest condensed milk companies states on its labels, "Milk is the best and only natural food for infants. This condensed milk is superior, for infants' food, to even the purest uncondensed milk, being uniform in quality, not liable to turn sour, and more easy of digestion . . . . For new-born infants, add 14 parts of water . . . ." This particular brand of milk, which was one of the samples examined, was diluted by me with 14 parts of water, as directed, when it gave the following analytical data :—

TOTAL SOLIDS.	FAT.	PROTEIDS.	MILK SUGAR.	ASH.	CANE SUGAR.
per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
6·49	·93	·82	1·26	·22	3·26

The average composition of human milk, according to the results of many authorities, is :—

TOTAL SOLIDS.	FAT.	PROTEIDS.	MILK SUGAR.	ASH.
per cent.	per cent.	per cent.	per cent.	per cent.
1·8	3·3	1·5	6·8	·2

It will be at once seen that the diluted condensed milk is deficient in the most essential constituents of human milk, *i.e.*, fat, proteids and milk sugar. In addition to this, the milk sugar in human milk differs in constitution from that in cows' milk, and also differs from cane sugar, and it is extremely doubtful whether its place can be adequately taken to any extent by either cows' milk sugar or by cane sugar. There can be no doubt that condensed milk, diluted as above, is a starvation diet for young infants, and since it is very largely used amongst the poor is one of the factors which adds to the high infant mortality from improper feeding.

Butter.—The eight adulterated samples of butter comprised five samples consisting of margarine, one sample containing an excess of boric acid (·54 per cent.), one sample containing 18·5 per cent. of water (standard 16 per cent.), and one sample returned as containing an excess of water, but which was also a milk-blended butter; this sample was sold as butter. The other samples of milk-blended butter have been returned as genuine but have not been included under the head of butter, since it has been decided that they cannot be sold as such. By a regulation of the Board of Agriculture, dated April 22nd, 1902, under Section 4 of the Sale of Food and Drugs Act, 1899, it is stated that, where the proportion of water in a sample of butter exceeds 16 per cent., it shall be presumed, for the purpose of the Sale of Food and Drugs Act, 1875 to 1899, until the contrary is proved, that the butter is not genuine by reason of the excessive amount of water therein. None of the samples of margarine contained an excess of butter fat, but two samples contained an excess of boric acid, *i.e.*, ·58 per cent. and ·56 per cent.

Cream.—Of the three samples of cream examined two were unsatisfactory; one containing an excess of preservative, ·31 per cent. boric acid (standard, ·25 per cent.), and one had been artificially thickened.

Other Samples.—Two out of three samples of German yeast were found to contain potato starch.

Three samples of sausages, one sample of potted chicken and ham, and one sample of potted shrimps were all found to contain borax, but only the latter contained an excessive amount. Two samples of bloater paste were both found to owe that colour to oxide of iron.

The samples of sweets were, as usual, found to contain aniline dyes and glucose, the dyes being, as far as could be judged, of a harmless nature.

As usual, all samples containing a large quantity of sugar and all drugs prepared by the aid of mineral acids, were examined for arsenic, with negative results.

(Signed) M. WYNTER BLYTH.

Appendix I.

Vital Statistics of Brighton during 1901 and Previous Years.

TABLE I.—*(Local Government Board Table).*

YEAR.	Population estimated to Middle of each Year.	BIRTHS.		DEATHS UNDER ONE YEAR OF AGE.		DEATHS AT ALL AGES. TOTAL.		DEATHS IN PUBLIC INSTITUTIONS.	Deaths of Non-residents registered in public institutions within the Borough.	Deaths of Residents registered in public institutions beyond the Borough.	DEATHS AT ALL AGES NET.	
		Number.	Rate.†	Number.	Rate per 1,000 Births registered.	Number.	Rate.†				Number.	Rate.†
1	2	3	4	5	6	7	8	9	10	11	12	13
1892	116,780	2958	25·3	447	151	—	—	303	—	—	—	—
1893	117,520	2981	25·3	504	169	—	—	358	—	—	—	—
1894	118,260	3055	25·8	420	137	—	—	371	—	—	—	—
1895	119,010	3057	25·7	503	164	—	—	360	—	—	—	—
*1896	119,760	3025	25·3	410	124	—	—	369	—	—	—	—
1897	120,510	2986	24·8	428	144	—	—	381	—	—	—	—
1898	121,270	3035	25·0	544	179	—	—	386	—	—	—	—
1899	122,040	3058	25·1	530	173	—	—	447	—	—	—	—
1900	122,860	2920	23·8	484	166	—	—	501	—	—	—	—
1901	123,668	2984	24·1	483	162	2085	16·8	485	68	8	2025	16·4
Averages for years 1892-1901	119,968	3006	25·1	475	158	—	—	396	—	—	—	—
1902	124,539	3072	24.3	387	125	2052	16.2	525	92	15	1975	15·7

*53 weeks. †Rates in Columns 4, 8 and 13 calculated per 1000 of estimated population.

NOTE.—The deaths to be included in column 7 of this table are the whole of those registered during the year as having actually occurred within the Borough. The deaths to be included in column 12 are the number in column 7, corrected by the subtraction of the number in column 10 and the addition of the number in column 11.

By the term "non-residents" is meant persons brought into the district on account of sickness or infirmity, and dying in public institutions there; and by the term "residents" is meant persons who have been taken out of the district on account of sickness or infirmity, and have died in public institutions elsewhere.

Area of district in acres (exclusive of area covered by water), 2536.
Total population at all ages ... ... 123,478, at census of 1901.
Number of inhabited houses ... ... 21,659, ,, ,,
Average number of persons per house ... 5·7, ,, ,,

TABLE II.—*Mortality according to Wards (Local Government Board Table).*

Names of Wards.	1. KEMP TOWN.				2. QUEEN'S PARK.				3. PIER.				4. PAVILION.				5. REGENCY.				6. WEST.				7. MONTPELIER.			
Year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.	Population estimated to middle of each year.	Births registered.	Deaths at all ages.	Deaths under 1 year.
	a.	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
1899	—	113	107	13	—	220	167	30	—	254	249	50	—	91	79	17	—	102	122	13	—	42	91	8	—	76	108	15
1900	—	114	125	25	—	201	161	39	—	242	237	51	—	79	51	2	—	99	124	16	—	46	79	7	—	76	90	16
1901	7150	108	90	19	8424	218	154	38	10487	241	202	37	4561	67	61	7	7523	127	113	18	4869	30	80	7	5887	74	86	9
1902	7191	92	93	13	8484	232	170	37	—	233	194	39	—	72	65	6	—	112	105	13	—	28	64	1	—	75	78	13

Names of Wards.	8. ST. NICHOLAS.				9. ST. JOHN'S.				10. HANOVER.				11. LEWES ROAD.				12. ST. PETER'S.				13. PRESTON PARK.				14. PRESTON.			
Year.	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*	*a.*	*b.*	*c.*	*d.*
1899	—	205	178	38	—	434	263	77	—	394	245	96	—	407	245	64	—	239	176	45	—	163	97	16	—	314	192	44
1900	—	236	166	42	—	376	243	61	—	384	208	70	—	394	273	64	—	229	168	36	—	156	89	20	—	300	189	35
1901	9173	218	178	44	11987	376	221	58	11235	367	199	60	13371	457	215	62	7653	218	168	54	7986	193	93	25	13172	291	182	45
1902	—	213	160	29	—	388	227	59	—	366	191	41	13571	462	207	52	—	235	135	28	8436	245	108	22	13290	319	200	34

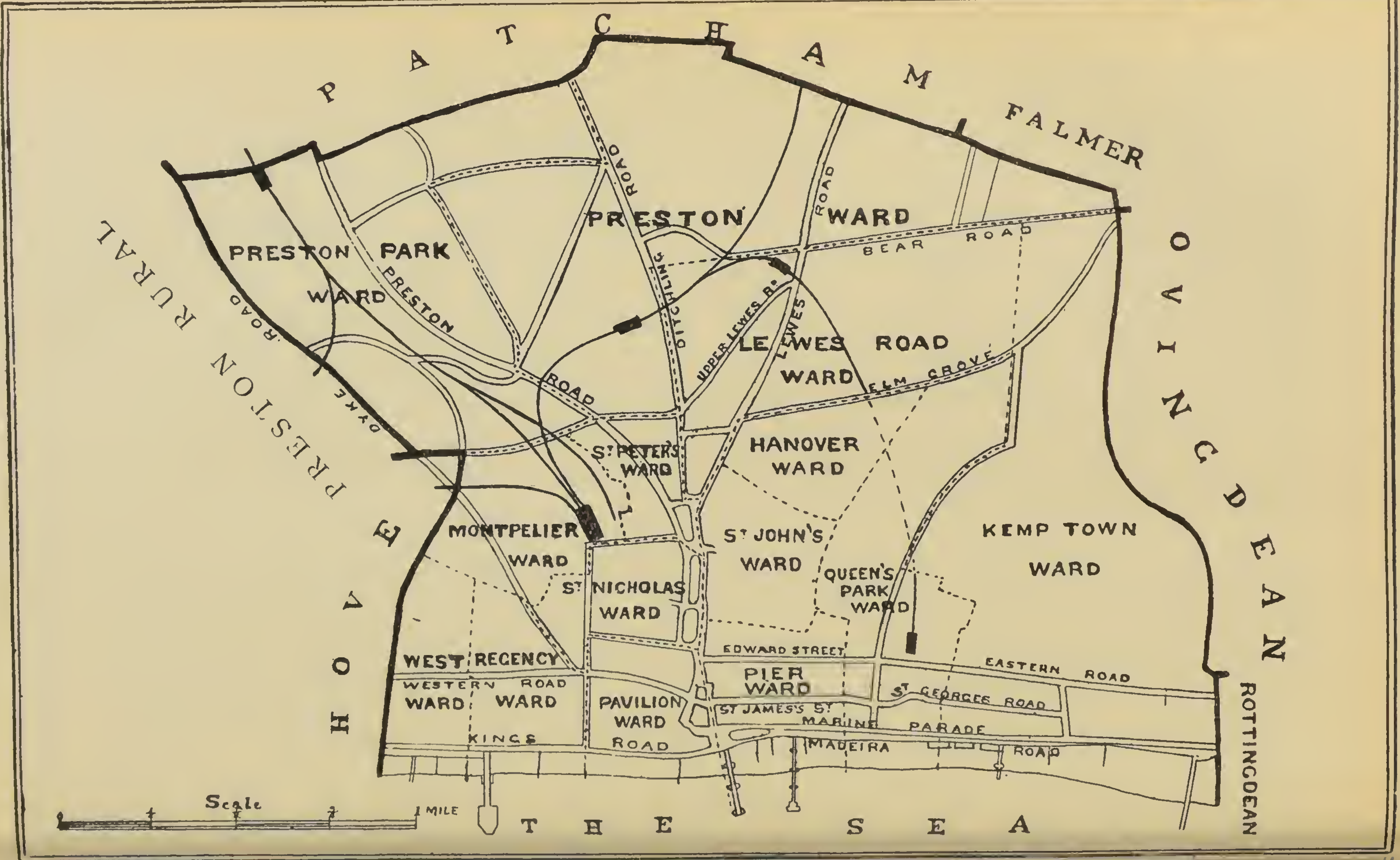

PATCHAM
FALMER
OVINGDEAN
ROTTINGDEAN
PRESTON RURAL
HOVE
THE SEA
PRESTON WARD
PRESTON PARK WARD
PRESTON
ROAD
DITCHLING ROAD
ROAD
BEAR ROAD
UPPER LEWES Rᴰ
LEWES
LEWES ROAD WARD
ELM GROVE
ROAD
DYKE ROAD
ST PETER'S WARD
HANOVER WARD
MONTPELIER WARD
ST JOHN'S WARD
QUEEN'S PARK WARD
KEMP TOWN WARD
ST NICHOLAS WARD
EDWARD STREET
EASTERN ROAD
PIER WARD
ST GEORGES ROAD
ST JAMES'S ST
MARINE PARADE
MADEIRA ROAD
WEST REGENCY
WESTERN ROAD
WARD
WARD
PAVILION WARD
KINGS ROAD
Scale
1 MILE

TABLE III.

WARD.	Number of Deaths during 1902.										
	All Causes.	Small Pox.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhoea.	Phthisis.	Other Tubercular Diseases.	Bronchitis and Pneumonia.
Kemp Town ...	93	—	—	—	—	—	1	—	10	—	13
Queen's Park ...	170	—	—	3	1	1	3	5	8	4	34
Pier...	194	—	1	5	4	2	1	2	20	3	28
Pavilion	65	—	—	2	—	—	1	4	7	2	10
Regency	105	—	—	—	2	—	2	3	11	3	12
West	64	—	—	1	—	1	—	—	8	1	4
Montpelier ...	78*	—	—	1	1	—	—	4	7	1	16
St. Nicholas ...	161	1	—	6	3	1	5	2	16	7	19
St. John's... ...	227	—	—	6	—	5	5	4	23	8	40
Hanover	191	—	—	4	1	10	1	6	15	5	39
Lewes Road ...	207	—	1	2	—	5	4	7	13	5	34
St. Peter's ..	135	—	—	3	--	3	2	6	12	4	17
Preston Park ...	108	—	1	2	—	—	2	3	10	3	15
Preston	185	—	—	1	2	2	1	3	12	4	25
	1983	1	3	36	14	30	28	49	172	50	306

* Of the deaths in Montpelier Ward 13 were of patients in the Children's Hospital, whose homes were outside Brighton ; the deaths in the Preston and Preston Park Wards do not include 15 deaths in the Shoreham Workhouse ; the deaths in the Queen's Park Ward include 46 whose local home address was unknown, or who were not residents of Brighton. Corrections for these figures have been made in the following death-rates :—

TABLE IV.

Death-rate in each Ward from all causes, from Tubercular Diseases and from Respiratory Diseases.

	Tubercular death-rate, per 1000.	Bronchitis and Pneumonia.	All Causes.
Kemp Town	1·44	2·14	14·3
Queen's Park	2·06	3·04	18·1
Pier	2·45	3·37	19·4
Pavilion	1·46	1·53	12·9
Regency	1·68	2·08	14·5
West	1·51	1·90	15·1
Montpelier	1·64	1·92	13·6
St. Nicholas	2·67	3·34	18·9
St. John's	2·28	3·69	18·8
Hanover	1·48	2·99	18·4
Lewes Road	1·92	2·62	17·4
St. Peter's	2·87	3·05	20·5
Preston Park	1·17	1·46	12·1
Preston	1·19	1·99	14·0

TABLE V.

CAUSES OF DEATH IN BRIGHTON DURING THE YEAR 1902.	Total Deaths.	SEX.			
		Male.	Female.	0—1	1—5
Small Pox	1	—	1	—	—
Measles	30	14	16	3	26
Whooping Cough	28	12	16	14	13
Diarrhœa	49	33	16	36	5
Enteric Fever	14	6	8	—	—
Enteritis	22	13	9	17	2
Diphtheria	36	18	18	3	20
Scarlet Fever	3	2	1	—	3
Puerperal Fever	2	—	2	—	—
Erysipelas	2	1	1	—	—
Influenza	30	13	17	—	1
Syphilis	12	7	5	7	—
Pyæmia	2	—	2	1	—
Phthisis	174	101	73	—	3
Tubercular Enteritis	8	4	4	4	2
General Tuberculosis...	12	5	7	2	1
Tubercular Meningitis	27	18	9	4	14
Tuberculosis of Larynx	1	1	—	—	1
Other Tubercular Diseases	5	1	4	—	—
Rheumatic Fever and Rheumatism of Heart	5	2	3	—	1
Alcoholism	13	9	4	—	—
Cancer	150	48	102	—	—
Premature Birth	75	51	24	75	—
Developmental Diseases	94	53	41	78	16
Old Age...	189	68	121	—	—
Meningitis	16	9	7	4	6
Inflammation and Softening of Brain	11	7	4	—	—
Organic Diseases of Heart	54	23	31	—	—
Acute Bronchitis	72	40	32	27	16
Chronic Bronchitis	14	7	7	1	—
Lobar Pneumonia	9	5	4	1	2
Lobular Pneumonia	66	38	28	30	27
Diseases of Stomach	24	14	10	8	3
Obstruction of Intestines	20	11	9	—	2
Cirrhosis of Liver	41	25	16	—	—
Bright's Disease	33	13	20	—	—
Tumours and other Diseases of Female Genitals	3	—	3	—	—
Accidents and Diseases of Parturition	8	—	8	—	—
Accidents and Negligence	40	*21	19	14	3
Suicide	7	5	2	—	—
Ill-defined	7	3	4	2	1
All other causes	589	293	296	56	33
Total	1998	994	1004	387	201

* One male age unknown.

TABLE V. *(contd.)*

AGES AT DEATH.									
5—10	10 15	15—20	20—25	25—35	35—45	45—55	55—65	65—75	75 and upwards
—	—	1	—	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—	—
—	—	—	—	2	1	—	—	2	3
1	1	3	3	3	3	—	—	—	—
—	—	—	—	1	—	—	—	2	—
9	4	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	1	1	—	—	—	—
—	—	1	—	—	—	—	—	—	1
—	—	—	3	2	—	4	3	9	8
—	—	—	—	—	2	—	3	—	—
—	—	—	—	1	—	—	—	—	—
5	—	15	17	43	41	27	20	2	1
1	1	—	—	—	—	—	—	—	—
—	3	2	1	1	1	1	—	—	—
6	1	1	—	—	—	1	—	—	—
—	—	—	—	—	—	—	—	—	—
—	1	—	2	1	1	—	—	—	—
—	2	—	—	1	—	—	1	—	—
—	—	—	—	1	5	5	1	1	—
1	—	1	2	5	12	25	49	38	17
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	29	160
1	2	—	1	—	1	—	1	—	—
—	1	—	—	—	1	1	2	4	2
—	1	1	1	2	9	8	11	13	8
—	—	—	1	1	2	3	2	8	12
—	—	—	1	—	—	—	1	6	5
1	—	1	—	1	—	2	1	—	—
1	—	—	—	—	1	1	2	2	2
—	—	—	1	1	4	2	1	1	3
1	—	—	—	1	6	8	2	—	—
—	—	—	—	3	9	11	14	4	—
1	—	1	1	3	6	6	4	6	5
—	—	—	—	—	—	1	1	—	1
—	—	—	—	7	1	—	—	—	—
2	—	—	3	2	4	—	4	2	5
—	—	—	1	1	1	1	—	3	—
—	—	—	—	—	—	1	1	2	—
4	7	8	8	24	41	67	102	132	107
36	24	35	46	108	153	175	226	266	440

TABLE VII.

1902. Week ending	Death-rate per 1,000 per annum.	Number of Deaths during week from										Temperature of air during week.			Temperature of soil during week at a depth of four feet.		Wind. No. of days of									Rainfall.		No. of hours of bright sunshine.
		Measles.	Scarlet Fever.	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Influenza.	Bronchitis.	Pneumonia, including Broncho-Pneumonia.	Phthisis.	Highest.	Lowest.	Mean.	Highest.	Lowest.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.	No. of days on which rain fell.	Amount collected in inches.	
Jan. 4...	24·3	2	—	2	—	1	—	—	11	6	2	53·0	41·0	47·9	43·4	41·8	—	—	—	—	1	4	1	—	1	6	0·79	8·17
,, 11...	14·7	—	—	1	—	1	—	—	4	6	1	50·0	37·0	45·3	43·8	43·4	—	—	—	—	—	4	1	2	—	2	0·10	10·00
,, 18...	15·5	1	—	1	—	1	—	—	4	5	4	50·4	27·0	39·8	44·2	43·4	1	3	—	—	1	—	—	—	2	—	—	5·50
,, 25...	17·2	2	—	—	1	1	—	—	3	2	5	48·0	28·8	42·5	43·0	42·6	1	—	—	—	—	1	2	—	3	1	0·18	11·75
Feb. 1...	16·7	1	—	—	2	—	—	1	1	5	—	50·4	29·4	37·8	43·0	41·8	2	2	—	—	—	—	2	1	—	3	0·36	30·16
,, 8...	15·9	2	—	1	2	—	—	—	9	2	5	44·8	31·0	35·8	41·6	40·0	2	4	—	—	1	—	—	—	—	5	0·48	4·08
,, 15...	18·4	1	—	—	—	1	—	2	7	3	3	41·0	26·2	33·0	40·0	39·0	4	1	—	—	—	—	—	—	2	2	0·05	29·58
,, 22...	23·0	3	1	2	3	—	1	1	10	2	4	46·6	21·2	35·7	38·6	37·8	2	2	—	2	—	—	—	—	1	2	0·29	23·58
Mar. 1...	24·3	5	—	2	—	—	—	2	10	6	4	50.0	40·2	44·6	39·8	37·8	—	2	—	—	2	—	—	—	3	6	0·74	9·91
,, 8...	15·1	2	—	1	—	—	—	2	4	4	2	57·8	33·8	44·4	41·2	40·0	3	1	—	2	—	—	—	—	1	2	0·02	32·92
,, 15...	20·5	3	—	2	1	—	—	2	3	—	5	60·0	33·4	44·9	42·8	41·6	1	—	1	1	2	—	1	—	1	2	0·54	24·67
,, 22...	16·3	1	—	—	—	—	—	5	8	—	5	57·8	38·8	46·0	43·8	42·8	—	—	—	—	—	3	1	1	2	3	0·18	28·33
,, 29...	20·1	—	—	—	1	—	—	3	4	4	5	60·2	33·2	46·0	44·0	43·8	—	—	—	—	1	3	1	1	1	4	0·80	29·33
April 5...	18·4	—	—	—	—	—	—	4	1	5	3	52·6	34·0	45·3	44·8	43·8	1	—	—	—	2	3	1	—	—	3	0·13	25·00
,, 12...	13·8	—	—	1	1	—	—	1	3	4	1	53·8	32·0	44·2	45·0	44·8	—	5	—	—	1	—	—	1	—	1	0·07	36·67
,, 19...	17·2	—	—	—	—	—	—	1	1	2	3	60·4	34·8	48·4	46·0	45·0	—	1	—	1	2	2	—	—	1	2	0·17	41·49
,, 26...	17·2	1	—	—	2	—	—	2	3	3	8	64·8	37·8	51·7	48·2	46·2	—	1	—	—	5	1	—	—	—	4	0·58	43·08
May 3...	14·7	—	—	—	—	—	1	1	3	—	3	61·0	37·2	49·6	49·0	48·6	—	3	—	—	—	1	2	1	—	4	0·14	48·58
,, 10...	13·8	—	—	—	1	—	1	1	2	1	3	56·6	35·0	45·4	49·2	48·8	—	—	—	—	—	1	2	4	—	6	0·21	48·33
,, 17...	18·8	1	—	—	—	—	—	—	6	4	6	57·8	34·0	47·3	48·8	48·6	—	—	—	—	1	2	3	1	—	7	0·97	23·07
,, 24...	16·3	—	—	—	—	—	—	—	1	6	7	71·0	39·2	52·4	49·6	48·8	2	—	—	—	—	—	1	3	1	3	0·31	42·83
,, 31...	16·3	3	—	—	—	—	—	1	5	1	4	68·8	45·8	56·6	52·6	49·8	—	—	—	—	1	4	—	1	1	4	0·39	48·50
June 7...	15·1	—	—	—	—	—	—	—	2	5	3	70·8	49·6	58·0	55·0	53·0	—	—	—	—	4	2	—	—	1	6	1·09	41·43
,, 14...	17·6	—	—	1	2	—	—	2	5	2	2	60·8	43·0	53·0	55·2	55·0	—	—	—	—	2	1	2	2	—	5	0·57	26·34
,, 21...	15·9	—	—	—	1	—	1	—	5	1	6	69·6	45·0	55·7	55·0	54·8	2	—	—	1	—	4	—	—	—	4	0·38	38·67
,, 28...	13·8	—	—	—	1	—	1	—	1	—	5	81·6	52·8	65·3	57·6	55·6	—	2	1	1	2	1	—	—	—	1	0·01	76·99

1902. Week ending	Death-rate per 1,0 per annum.	Measles.	Scarlet Fever	Diphtheria.	Whooping Cough.	Fever.	Diarrhœa.	Influenza.	Bronchitis.	Pneumonia, including Broncho-Pneumonia.	Phthisis.	during week.			during week at a depth of four feet.		No. of days of									No. of days on whic rain fell.	Amount collected in inches.	No. of hours of sunshine.
												Highest.	Lowest.	Mean.	Highest.	Lowest.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.	Calm.			
July 5...	14·2	1	—	1	1	—	—	—	2	1	1	75·6	46·4	60·8	59·6	58·2	—	—	2	—	2	2	—	1	—	3	0·66	57·08
,, 12 ..	9·6	—	—	—	—	—	1	—	2	1	2	75·2	47·2	62·7	61·0	59·6	1	—	—	2	—	3	—	—	1	2	0·23	85·58
,, 19...	11·3	—	—	—	1	—	1	—	1	1	4	76·4	47·2	62·4	61·2	60·6	4	—	—	—	1	—	—	1	1	1	0·12	70·08
,, 26...	10·5	—	—	—	—	—	—	—	1	—	5	67·6	49·2	59·0	61·2	60·6	1	1	—	—	—	3	1	—	1	4	0·65	20·67
Aug. 2...	15·9	1	—	—	2	1	1	—	1	2	5	66·4	44·4	58·9	61·0	60·4	1	1	—	—	—	3	2	—	—	2	0·11	35·33
,, 9...	17·2	—	1	—	1	—	—	9	—	2	3	67·8	48·4	61·7	61·0	60·4	—	—	—	—	2	3	1	1	—	6	0·50	32·25
,, 16...	13·8	—	—	1	—	—	—	—	3	1	3	75·6	46·2	59·2	61·2	60·8	—	—	—	1	1	2	1	2	—	6	0·78	33·17
,, 23...	14·7	—	—	2	2	—	2	—	2	—	3	69·2	52·4	61·7	61·4	61·0	—	—	—	1	1	4	1	—	—	3	1·61	38·51
,, 30...	14·2	—	—	—	1	—	3	—	1	—	4	79.6	51·2	63·2	61·8	61·4	—	—	—	2	—	1	2	1	1	2	0·28	62·66
Sept. 6...	13·5	—	—	1	—	1	3	—	—	—	2	68·0	46·6	62·5	62·2	61·8	—	—	—	—	1	4	1	—	1	3	0·81	33·08
,, 13...	11·7	—	—	—	2	1	2	—	—	1	2	71·8	41·8	59·8	62·6	62·0	2	1	—	—	1	1	—	2	—	2	0 09	36·83
,, 20 ..	14·7	—	1	2	—	—	7	1	—	2	1	64·8	40·0	55·8	62·0	60·6	—	—	—	2	—	1	2	2	—	2	0·28	43·66
,, 27...	14·7	—	—	—	—	—	3	1	—	—	2	70·0	45·8	59·5	60·4	59·4	1	2	—	2	1	—	—	1	—	1	0·08	55·76
Oct. 4...	18·0	—	—	—	—	—	8	—	2	1	4	61·8	40·6	52·3	59·4	58·0	3	4	—	—	—	—	—	—	—	5	0.19	20·59
,, 11..	15·9	—	—	1	—	—	5	—	2	—	4	62·8	39·6	53·2	57·6	56·4	1	2	—	—	1	1	2	—	—	4	0·67	25·26
,, 18...	14·2	—	—	1	—	1	2	—	2	1	1	61·2	41·8	53·7	56·6	56·4	—	1	—	—	1	1	3	1	—	5	0·67	24·83
,, 25...	14·7	—	—	2	1	—	1	—	—	2	3	60·2	41·0	50·9	55·8	54·8	—	—	—	—	1	2	2	2	—	3	0·43	13·35
Nov. 1...	12·6	—	—	2	—	1	—	—	1	1	1	59·8	38 0	49·9	54·6	53·0	1	—	—	—	1	1	2	1	1	3	0·04	17·01
,, 8...	11·3	—	—	—	—	—	—	—	1	3	1	60·0	44·4	53·2	53·2	52·6	—	1	—	3	1	2	—	—	—	5	1·20	17·18
,, 15...	14·2	—	—	2	—	—	1	—	—	1	7	57·2	36·6	49·9	53·2	52·6	—	1	—	—	1	3	2	—	—	3	0·29	18·15
,, 22...	12·6	—	—	1	—	1	1	—	1	1	2	49·8	29·8	37·9	52·2	49·4	1	4	—	1	—	—	—	1	—	1	0·06	14·83
,, 29..	15·5	—	—	—	—	—	—	—	6	9	2	52·8	37·6	47·8	48·8	48·2	2	—	—	4	1	—	—	—	—	7	1·19	7·92
Dec. 6...	12·6	—	—	1	—	1	—	—	5	1	2	52·4	26·6	39·7	48·8	48·0	1	3	—	1	—	1	1	—	—	4	0·65	9·42
,, 13...	10·5	—	—	—	—	—	1	—	1	2	2	49·8	21·8	35·2	46·8	44·4	1	5	1	—	—	—	—	—	—	3	0·11	8·17
,, 20...	25·1	—	—	2	—	1	—	—	5	4	3	55·6	36·2	47·0	45·8	44·0	—	—	—	—	—	3	2	2	—	4	0·54	6·33
,, 27...	18·0	—	—	2	—	—	2	—	6	5	2	52·4	32·6	45·7	46·0	45·6	2	1	—	—	—	—	2	2	—	2	0·02	2·50
1903 Jan. 3...	17·6	—	—	1	—	1	—	—	4	4	4	51·0	30·6	42·8	45·8	44·8	—	—	—	1	2	2	1	1	—	6	0·63	6·83
		30	3	36	29	14	49	42	165	125	174	81·6	21·2	48·7	62·6	37·8	43	54	5	28	47	80	48	39	27	180	22·44	1585·99

TABLE VI. *(Local Government Board Table).*

Cases of Infectious Disease Notified during the Year 1901.

NOTIFIABLE DISEASE.	CASES NOTIFIED IN WHOLE BOROUGH.												TOTAL CASES NOTIFIED IN EACH WARD*.														NO. OF CASES REMOVED TO HOSPITAL FROM EACH WARD*.													
	At all Ages.	At Ages—Years.																																						
		Under 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Small Pox	10	1	2	—	—	2	1	—	4	—	—	—	—	—	—	—	—	—	—	5	—	—	—	5	—	—	—	—	—	—	—	—	—	5	—	—	—	5		
Diphtheria	435	7	131	134	80	24	25	19	11	3	1	—	14	30	31	21	13	10	22	51	53	43	60	26	18	43	12	23	19	18	9	6	12	45	46	29	52	21	12	23
Membranous Croup	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1					
Erysipelas	101	2	4	4	7	6	2	11	18	21	16	10	18	8	8	8	1	2	5	5	6	11	13	3	4	9														
Scarlet Fever ...	146	2	37	54	28	10	8	7	—	—	—	—	15	11	5	4	16	2	10	10	21	10	18	5	11	8	10	7	5	3	12	1	7	8	21	11	12	3	8	4
Enteric Fever ...	65	—	3	7	8	13	9	8	12	3	2	—	2	4	8	1	6	6	4	8	7	3	3	2	5	6	2	2	6	—	5	2	3	7	7	2	3	2	2	3
Puerperal Fever ...	4	—	—	—	—	—	—	4	—	—	—	—	—	1	1	—	—	—	—	1	—	—	1																	
Chicken Pox ...	322	33	109	127	38	7	4	1	3																															
Plague	0																																							
Totals	1085	46	287	326	161	62	49	50	48	27	19	10	49	54	53	34	36	20	41	80	88	68	95	41	38	66	24	32	30	21	26	9	22	65	75	42	67	31	22	30

APPENDIX II.

Report on Census Returns of 1901.

(ISSUED OCTOBER 1902, REVISED MARCH, 1903.)

October 20th, 1902.

To the Sanitary Committee.

GENTLEMEN,—The following report gives all the information contained in the recently issued Census Report on Sussex, which bears on the interests of Brighton. The tables have been summarised from large tables given in the Registrar General's Report, and have in many instances been readjusted, and supplemented by information obtained from preceding census reports, so as to bring out points of comparison.

TABLES OF POPULATION AND HOUSES WITHIN THE MUNICIPAL AND PARLIAMENTARY BOUNDARIES OF THE BOROUGH AND THE SEVERAL PARISHES OF BRIGHTON, PRESTON AND HOVE RESPECTIVELY.

POPULATION.

Census Year.	Parish of Brighton.	Parish of Preston.	Total Municipal Borough of Brighton.	Parish of Hove.	Parish of Preston Rural.	Total Parliamentary Borough of Brighton.
1801	7339	—	—	—	—	—
1811	12012	—	—	—	—	—
1821	24429	—	—	—	—	—
1831	40634	—	—	1360	—	41994
1841	46661	—	—	2509	—	49170
1851	65569	—	—	4104	—	69673
1861	77693	—	—	9624	—	87317
1871	90011	2460	—	11271	10	103752
1881	99091	8455	107546	20804	90	128440
1891	102716	13157	115873	26097	159	142129
1901	102320	21158	123478	29695	213	153386

NUMBER OF HOUSES.

	1871.	1881.	1891.	1901.
Brighton	15376	17176	17300	17650
Preston	400	1492	2243	4009
Total Municipal Borough ...	15776	18668	19543	21659
Hove, Parish of	1595	3044	4009	5013
Preston Rural	6	7	17	19
Total Parliamentary Borough ...	17377	21719	23569	26691

N.S. 1703—10/1902—750

COUNTY BOROUGH OF BRIGHTON.

	Area in Statute Acres	Houses, 1901.				Population.			
		In-habited.	Un-inhabited.		Build-ing.	1891.	1901.		
			In occupation	Not in occupation			Persons.	Males	Females.
County Borough of Brighton	2536	21659	1284	971	190	115873	123478	54210	69268
Civil Parish of									
Brighton	1629	17650	1226	744	81	102716	102320	45013	57307
Preston	907	4009	58	227	109	13157	21158	9197	11961
Wards:									
Hanover ...	—	1873	13	45	4	—	11235	5427	5808
Kemp Town ...	—	1217	38	147	19	—	7150	2516	4634
Lewes Road ..	--	2272	47	51	32	--	13371	6222	7149
Montpelier ...	—	1054	26	48	4	—	5887	2227	3660
Pavilion ...	—	795	419	32	1	—	4561	1962	2599
Pier	—	1838	56	127	—	—	10487	4545	5942
Preston ...	—	2423	35	120	48	—	13172	5767	7405
Preston Park ...	—	1586	23	107	61	—	7986.	3430	4556
Queen's Park ...	—	1297	36	85	13	—	8424	3826	4598
Regency ...	—	1286	182	33	—	—	7523	2944	4579
St. John's ...	—	2149	18	38	1	—	11987	5872	6115
St. Nicholas ...	—	1662	211	47	—	—	9173	4260	4913
St. Peter ...	—	1404	69	37	—	—	7653	3726	3927
West	—	803	111	54	7	—	4869	1486	3383
The Civil Parish is coterminous with the Registration District of Brighton. This is subdivided into									
East Brighton	1062	9338	181	464	69	52695	55425	25056	30369
West Brighton	567	8312	1045	280	12	50021	46895	19957	26938

ECCLESIASTICAL PARISHES OR DISTRICTS IN BRIGHTON.

	Date of Formation.	Inhabited Houses 1901.	Population 1901.	Population 1891.
All Souls	1883	679	3611	3644
Chapel Royal	1897	259	1371	?
St. Augustine, Preston	1898	1295	6154	?
St. Bartholomew	1881	1070	5926	6268
St. James	1876	814	4980	5085
St. John the Evangelist	1872	884	4892	5543
St. Luke	1885	1541	8776	7555
St. Martin	1875	1799	10321	9507
St. Mary	1879	585	3096	3647
St. Mary Magdalene	1884	584	3178	3560
St. Matthew...	1884	781	4494	4403
St. Nicholas	1873	986	5318	5380
St. Paul	1873	736	4354	5002
St. Peter, with West Blatchington St. Peter	—	5992	36456	37948
St. Saviour, Preston	1888	927	5243	5499
The Annunciation	1880	961	5646	5269
Preston, St. Peter	—	888	5346	5118
Prestonville, St. Luke	1878	918	4628	?

Institutions in or belonging to Brighton.

Civil Parish.	Institution.	Special Inmates. Patients, Paupers, &c.			Officials and their Families.		
		Persons.	Males.	Females	Persons.	Males.	Females
Brighton ...	Workhouse	1268	701	567	68	19	49
	French Convalescent Home ...	18	10	8	7	1	6
	London and Brighton Female Convalescent Home	72	—	72	10	—	10
	County Hospital	178	98	80	101	8	93
	St. John's Home	70	4	66	15	—	15
	St. Saviour's Hostel	—	—	—	3	—	3
	Brighton and Hove Lying-in Hospital and Nurses' Home	7	—	7	23	1	22
	Children's Hospital	45	20	25	26	2	24
	Throat and Ear Hospital ...	5	3	2	9	—	9
	Eye Hospital	10	7	3	6	—	6
	Invalid Home, Silwood Lodge	16	5	11	14	2	12
	Home for Convalescent and Invalid Children	21	11	10	5	—	5
Patcham ..	Brighton School Board Truant Industrial School	37	37	—	4	2	2
Preston ...	Brighton Borough Sanatorium	59	25	34	43	6	37
Rottingdean	Workhouse Schools (Warren Farm)	288	173	115	34	13	21

Total Tenements and Tenements of less than Five Rooms in Brighton.

Brighton—Total Tenements	... ...	28,846
Tenements of less than 5 rooms		11,561

Rooms in Tenements.	Tenements of less than 5 rooms.	Persons per Tenement.											
		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12 or more.
1	2477	1645	584	190	51	6	1	—	—	—	—	—	—
2	3069	618	1108	700	401	166	51	18	7	—	—	—	—
3	2613	210	706	661	450	286	168	88	31	9	3	—	1
4	3402	80	548	685	661	561	391	253	150	57	13	1	2

Taking the standard of the Registrar General, it may be assumed that there is overcrowding in tenements, each room of which is occupied on an average by more than two persons. On this basis the following table has been calculated :—

Tenements of	Total Number of Tenements.	Number of Overcrowded Tenements.	Percentage Overcrowded.
One Room	2477	248	10·0
Two Rooms ...	3069	242	7·9
Three Rooms ...	2613	132	5·1
Four Rooms ...	3402	73	2·2
In Hove the corresponding numbers are :—			
One Room	526	42	8·0
Two Rooms ...	773	52	6·7
Three rooms ...	691	25	3·6
Four rooms ...	591	14	2·4

The proportion of total tenements which contain less than five rooms is an important index of conditions of housing and of social status, and is therefore given here for all the Urban Districts of Sussex :—

	Total No. of Tenements.	Percentage containing less than 5 rooms.	No. of Tenements of less than 5 rooms that were crowded.*	Percentage of Tenements of less than 5 rooms that were crowded.
Battle	656	35·0	4	1·8
Bexhill	2388	18·1	13	3·0
BRIGHTON...	28846	40·1	695	6·0
Burgess Hill	1122	25·7	10	3·5
Cuckfield	365	21·0	0	0
Eastbourne	8677	32·0	152	5·5
East Grinstead	1197	32·0	10	3·9
Hastings	14600	35·1	306	6·0
Hayward's Heath ...	786	21·1	5	2·7
Hove	8278	31·2	153	5·2
Lewes	2541	20·8	8	1·5
Newhaven...	1309	35·2	21	4·6
Portslade-by-Sea... ...	1153	25·1	12	4·2
Rye...	940	24·1	3	1·3
Seaford	693	14·0	2	2·0
Uckfield	622	14·0	3	1·9
Arundel	586	34·0	9	4·5
Bognor	1296	13·4	4	2·3
Chichester...	2560	26·0	18	2·7
Horsham	2069	15·5	12	3·8
Littlehampton	1609	13·4	8	3·7
New Shoreham	792	30·6	12	5.0
Southwick...	772	31·3	8	3·3
Worthing	4471	14·8	25	3·8

* *i.e.*, contained on an average more than 2 persons in one room.

The proportion of dwellings which contained less than five rooms varied from 40·1 per cent. of the total in Brighton, 35·2 per cent. in Newhaven, 35·1 per cent. in Hastings, 34·0 per cent. in Arundel, 32·0 per cent. in Eastbourne, 313 per cent. in Southwick, and 31·2 per cent. in Hove, to 14·0 percent. in Seaford and Uckfield, and 13·4 per cent. in Bognor and Littlehampton. The proportion of tenements containing less than five rooms that were crowded varied from 6·0 per cent in Brighton and Hastings, 5·5 per cent. in Eastbourne and 5·2 per cent. in Hove, to 1·3 per cent. in Rye and none in Cuckfield.

For Brighton, the statistics as to number of rooms per tenement are set forth in further detail in the table on p. 3. It will be observed that of the one-roomed tenements 10 per cent. are overcrowded, 7·9 per cent. of the two-roomed, 5·1 per cent. of the three-roomed, and 2·2 per cent. of the four-roomed tenements, being similarly overcrowded.

Note.—The definition of crowding, adopted by the Registrar General in discussing the census returns of 1891, was the presence on the average of more than two persons in each room of a tenement, as returned in the census schedule. This is a reasonable standard, especially in view of the fact that, excepting in one-roomed tenements, not every room is occupied as a bedroom. It is probable, however, that it gives a much higher percentage of apparent overcrowding than would be furnished, if the common lodging house standard of 350 cubic feet for each person were taken.

The preceding results can be compared with the corresponding results for 1891. In the following table I have made the necessary calculations for this purpose :—

1891.	Total.	Number overcrowded	Percentage overcrowded.	
			1891.	1901.
No. of one-roomed tenements ...	2415	356	14·7	10·0
,, ,, two ,, ,, ...	2897	345	12·0	7·9
,, ,, three ,, ,, ...	2131	168	7·9	5·1
,, ,, four ,, ,, ...	2725	87	3·2	2·2
Total tenements of less than five rooms...	10168	956	9·4	6·0

It will be noted that the percentage of one-roomed tenements that are overcrowded has declined from 14·7 to 10·0; of two-roomed tenements similarly overcrowded, from 12·0 to 7·9; of three-roomed tenements, from 7·9 to 5·1; and of four-roomed tenements, from 3·2 to 2·2 per cent.

	Number.		Per centage Increase
	1891	1901	
No. of one-roomed tenements	2415	2477	2·6
,, ,, two ,, ,, ...	2897	3069	5·9
,, ,, three ,, ,, ...	2131	2613	22·6
,, ,, four ,, ,, ...	2725	3402	24·8
Total Tenements of less than five rooms	10168	11561	13·7
Total Tenements, containing five or more rooms	15172	17285	11·4

Along with this diminution of overcrowding it will be seen from the preceding table that while the larger tenements containing five rooms and over have increased during the past ten years to the extent of 11·4 per cent., one-roomed tenements have only increased 2·6 per cent., two roomed tenements only 5·9 per cent., while three-roomed tenements have increased 22·6 per cent., and four-roomed tenements 24·8 per cent.

It is satisfactory to be able to conclude from the preceding tables that coincidently with the clearing of insanitary areas in Brighton and the spreading out of its population, the amount of overcrowding has considerably declined. The most striking feature as regards housing is the enormous percentage increase of three and four-roomed tenements (22·6 per cent. and 24·8 per cent.) shewn by the census returns, as compared with an increase of 11·4 per cent. in houses containing more than five rooms. The total increase of tenements comprising more than four rooms was 2113, of three- and four-roomed tenements 1159. It is reasonable to expect that the increased facilities for travelling furnished by our network of tramways will in the present decennium still further spread out the population and diminish overcrowding.

AGE AND SEX DISTRIBUTION OF POPULATION OF BRIGHTON.

	Males.	Females.	Persons.
Under 5	5792	5960	11752
5 –	5597	5724	11321
10 –	5632	5872	11504
15 –	5430	6826	12256
20 –	4807	7211	12018
25 –	8315	12129	20474
35 –	7090	9224	16314
45 –	5243	7048	12291
55 –	3451	4973	8424
65 –	1981	2890	4871
75 –	750	1219	1969
85 and upwards	92	192	284
Total	54210	69268	123478

Out of 100,000 at all ages, the numbers of males and females living at each age-group was, in 1891 and 1901, as follows:—

	Males.		Females.		Persons.	
	1891.	1901.	1891.	1901.	1891.	1901.
Under 5 ...	5100	4690	5200	4824	10300	9514
5— ..	5200	4532	5200	4635	10400	9167
10— ...	4900	4561	5200	4755	10100	9316
15— ..	4300	4399	5800	5529	10100	9928
20— ...	3600	3892	5900	5839	9500	9731
25— ...	6600	6760	9300	9821	15900	16581
35— ...	5300	5741	7100	7471	12400	13212
45— ...	3900	4246	5300	5707	9200	9953
55— ...	2600	2796	3700	4029	6300	6825
65— ...	1600	1605	2400	2341	4000	3946
75— ...	600	608	900	988	1500	1596
85 and upwards ...	100	75	200	156	300	231
	43800	43905	56200	56095	100000	100000

The most important change in the age distribution of the population is the great decline in the proportion of the population aged 0 to 15 years, with a corresponding proportional increase at higher ages. In 1891 15·2 per cent. of the male population and 15·6 per cent. of the female population were under 15 years of age; the corresponding percentages in 1901 being 13·78 and 14·21. This change has an important bearing on the amount of school accommodation required in our elementary day schools. The ages for compulsory school attendance range approximately from 5 to 14 years of age, though a considerable number attend school under 5 years of age. The Education Act, which came into operation in September, 1900, raised the compulsory age from 13 to 14. The number of boys in 1901 aged 5 to 14 was 10,080, the number of girls at the same ages, 10,327. There is no corresponding statement in the census returns for 1891 of the children aged 5 to 14 years, consequently the comparison must be made between children aged 5 to 15 at the two census enumerations.

	1891		1901		Total 5-15.	
	5-10	10-15	5-10	10-15	1891	1901
Boys	5993	5736	5597	5632	11729	11368
Girls	5980	6084	5724	5872	12064	11586

Thus although the entire population of Brighton has increased to the extent of 6·6 per cent., the number of children, for a fairly well-known proportion of which accommodation in elementary schools is required,* has actually diminished. The decrease of boys at ages 5-15 amounts to 3·1 per cent., of girls to 4·0 per cent.

The cause of the diminished demand on school accommodation is undoubtedly the lower birth-rate of the last decennium.

The lower proportion at school ages has been transferred to early and middle adult life. Thus at ages 20-25 there are 3·89 per cent. of the total males as compared with 3·6 per cent. in 1891; at ages 25-35 6·76 per cent. as compared with 6·6; at ages 35-45 5·74 per cent.—as compared with 5·3 and so on.

Among females the proportion aged 15-25, as well as that at lower ages, has declined, while at higher ages, and particularly at the ages 25-55, there is an increased proportion.

CONDITION AS TO MARRIAGE.

All Ages.			Under 15.	15—	20—	25—	35—	45—	55—	65 and upwds
Unmarried	Males ...	31407...	17021	5415	3921	2906	1070	540	325	209
	Females	41316...	17556	6740	5664	5326	2533	1625	987	885
Married ...	Males ...	20718...	—	15	880	5365	5806	4344	2652	1656
	Females	21761...	—	86	1523	6559	5977	4189	2394	1033
Widowed	Males ...	2085...	—	—	6	74	214	359	474	958
	Females	6191...	—	—	24	244	714	1234	1592	2383
		123478	34577	12256	12018	20474	16314	12291	8424	7124

* The total accommodation in Board and Voluntary Schools is stated in a recent report by Mr. Carden, the Clerk to the School Board, to be 21,843, including the increase at St. Luke's Terrace School now, being provided. At the last census the children aged 3-14 years numbered 25,078, the children aged 5-14 numbered 20,407. Elementary Day School accommodation at the present time for more than the entire population in 1901 of children aged 5-14, which is the compulsory school age, and for about 87 per cent. of the entire population of children aged 3-14 years. Mr. Carden draws my attention to the fact that a certain proportion of the children stay on until 15 years of age, up to which age the grants are paid by the Board of Education.

From the preceding table the following table, shewing the number out of every 100 males or females at each age-period who are unmarried, married or widowed respectively, has been calculated :—

		Under 15.	15—	20—	25-	35—	45—	55—	65 and upwds
Males	Unmarried	100	99·7	81·5	34·9	15·1	10·3	9·4	7·4
	Married	—	·3	18·3	64·3	81·9	82·9	76·9	58·7
	Widowed	—	—	·2	·8	3·0	6·8	13·7	33·9
Females	Unmarried	100	99·0	78·6	44·1	27·5	23·1	19·9	16·7
	Married	—	1·0	21·1	54·2	64·8	59·4	48·2	19·5
	Widowed	—	—	·3	1·7	7·7	17·5	31·9	63·8

The proportion of the male population married is greatest at ages 35-55. Between 20-25 and 25-35 there is a rapid increase from 18·3 to 64·3 per cent. of the respective total numbers at these ages. There are in the total population of Brighton 45 males to every 57 females, and, as will be seen from the above table, the proportion of married women is much smaller than that of married men at all ages, except 20-25 and over 65 years of age. A much larger proportion of women than of men are or remain widowed.

The matrimonial condition of those aged 20 to 45 years, especially of women, is more important from the standpoint of replenishment of the population than that at any other ages. The following comparison between 1891 and 1901 shews that of men aged 20 to 45, 1·1 per cent. fewer are married in the later than in the earlier year, while among women the proportion married has slightly increased.

PERCENTAGE OF NUMBERS LIVING AT AGES 20 TO 45 WHO ARE RESPECTIVELY UNMARRIED, MARRIED AND WIDOWED.

	Males.		Females.	
	1891	1901	1891	1901
Unmarried..	38·0	39.1	47·6	47·4
Married	60·9	59·7	48·2	49·3
Widowed	1·1	1·2	4·2	3·3
	100	100	100	100

OCCUPATIONS (CONDENSED LIST) OF MALES AND FEMALES AGED TEN YEARS AND UPWARDS, 1891 AND 1901.

	1891.		1901.		
				Females.	
	Males.	Females	Males.	Unmr'd.	Married
Total occupied and unoccupied ...	—	—	42821	29632	27952
Retired or unoccupied	—	—	8318	12833	22697
Engaged in occupations	—	—	34503	16799	5255
I.—General, or Local Government of Country	635	35	765	76	7
II.—Defence of Country (Army, Navy and Marines)	618	—	612	—	—
III.—Professional Occupations and their subordinate services—					
1. Clerical (Clergy, Scripture Readers, Cemetery Officers, &c.)	266	112	243	112	12
2. Legal (including Law Clerks) ...	314	2	345	1	—
3. Medical (including Dentists, Veterinary Surgeons and nurses) ..	255	506	258	382	247
4. Teaching	329	969	342	820	43
5. Music and Art	643	338	736	301	88
6. Literary, Engineers, &c.	180	18	171	8	6
IV.—Domestic Offices or Services—					
Indoor Servants in hotels, lodging and eating houses	(?)	(?)	388	1349	109
Other Domestic Indoor Servants ...	543	9828	293	6827	603
Domestic Outdoor Service	(?)	(?)	431	—	—
Charwomen	—	728	—	133	581
Laundry and Washing Service ...	149	2617	127	1108	1402
Others	(?)	(?)	348	284	159
V.—Commercial Occupations—					
Merchants, Agents and Accountants	428	10	717	10	3
Commercial or Business Clerks ...	923	186	1080	405	16
Dealers in Money, Insurance	242	1	352	—	1
VI.—Conveyance of Men, Goods and Messages—					
On Railways	767	3	1281	—	3
Coachmen, Cabmen	1269	—	962	—	—
Carters, Carriers...	555	2	986	—	—
On Seas and in Docks	220	1	186	1	—
Porters, Messengers, Watchmen ...	1695	33	1527	3	—
Others	351	2	621	67	—
VII.—Agriculture—					
Gardeners (non-domestic), Nurserymen, &c.	472	24	362	4	8
Agricultural Labourers and Farm Servants	241	6	169	3	5
Others	103	11	41	—	2
VIII.—Fishing	277	—	215	—	—
IX.—Mines and Quarries—					
Dealers and Workers	(?)	(?)	114	1	5
X.—Metals, Machines, Implements and Conveyances—					
Ironfounders	(?)	(?)	110	—	—
Blacksmiths, Strikers	437	1	367	—	—
Erectors, Fitters, Turners	(?)	(?)	424	—	—
*Vehicles	626	3	863	1	1
†Others	(?)	(?)	1110	10	4

* Including 605 Male Railway Coach Waggon Makers.

† Including 244 Boiler Makers

	1891.		1901.		
	Males.	Females	Males.	Females.	
				Unmr'd.	Married
XI.—Precious Metals, Instruments, &c.—					
Electrical Apparatus Makers	83	1	470	—	—
Others	268	37	433	49	12
XII.—Building and Works of Construction—					
Carpenters, Joiners	900	3	1088	—	—
Bricklayers, Bricklayers' Labourers ...	904	—	1039	—	—
Masons, Masons' Labourers	88	—	121	—	—
Painters, Decorators, Glaziers ...	1360	1	1239	—	—
Plumbers	266	—	368	—	—
Others	309	—	1507	—	—
XIII.—Wood, Furniture, Fittings and Decorations—					
Cabinet Makers, Upholsterers ...	517	94	409	43	34
Other Workers in Furniture	435	21	256	8	6
Workers in Wood and Bark			165	—	1
Dealers			247	17	13
XIV.—Brick, Cement, Pottery and Glass	—	—	74	15	2
XV.—Chemicals, Oil, Grease, Soap, Resin, &c.—					
Chemists and Druggists	170	15	174	16	1
Others	37	16	112	12	1
XVI.—Skins, Leather, Hair and Feathers	67	22	134	25	15
XVII.—Paper, Prints, Books and Stationery—					
Printers, Lithographers	432	17	497	22	1
Bookbinders	52	33	48	64	3
Others	162	36	357	104	23
XVIII.—Textile Fabrics—					
Dealers (Drapers and others)	499	419	397	480	17
Others			53	54	16
XIX.—Dress—					
Tailors	649	193	544	194	57
Milliners, Dressmakers...	27	2852	9	2036	421
Shirtmakers, Seamstresses	6	397	8	149	198
Boot and Shoe Makers	546	51	429	8	5
Others	311	71	516	153	47
XX.—Food, Tobacco, Drink and Lodging—					
Food Workers and Dealers	2965	486	3169	359	176
Tobacconists	76	28	98	22	18
Makers of Spirituous Drinks	208§	1	281‡	—	—
Coffee, Eating, Lodging and Boarding House Keepers	262	918	283	441	596
Hotel Keepers and Publicans	368	113	460	24	110
Cellarmen, Barmen, Inn Service ..	240	53	616	390	16
Wine and Spirit Merchants, Agents...	72	6	83	—	—
XXI.—Gas, Water, Electricity and Sanitary Service	(?)	(?)	249	—	—
XXII.—Other, General and Undefined Workers and Dealers—					
Costermongers, Street Hawkers ...	440	118	457	20	79
General Labourers	1599	1	1077	—	—
Others	540	186	490	185	79
XXIII.—Without Specified Occupations or Unoccupied—					
Retired from Business (not Army, Navy, Church, Medicine Pensioners) ...	1037	393	1366	221	317
Living on own means	1047	4156	1097	1934	2183
Others, aged 10 years and upwards (including Students)	6017	26172	5855	10678	20197

§ Including 184 Brewers.

‡ Including 252 Brewers.

The following summary of the number of males and females respectively, aged 10 years and upwards is given in the Census Report:—

OCCUPATIONS OF PERSONS AGED 10 YEARS AND UPWARDS.

		Males.	Females.
	Number of males aged 10 and under 14 years, who are engaged in occupations	280	
	Proportion per cent. borne by these to total number engaged in occupations...	6·2	
	Total occupied and unoccupied, aged 10 and upwards	42821	
XXIII.	Retired or unoccupied...	8318	
I.-XXII.	Engaged in occupations	34503	
V. 2.	Commercial or Business Clerks	1080	
VI.	Conveyance of Men, Goods and Messages...	5563	
VII.	Agriculture—On Farms, Woods and Gardens	572	
VIII.	Fishing	215	
X. 3.	Engineering, and Machine Making... ...	1606	
XII.	Building and Works of Construction ...	5362	
XIII.	Wood, Furniture, Fittings and Decorations	1077	
XIV.	Brick, Cement, Pottery and Glass	74	
XVI.	Skins, Leather, Hair, Feathers	134	
XVII.	Paper, Prints, Books and Stationery ...	902	
XIX.	Dress	1506	
XX.	Food, Tobacco, Drink, Lodging	4990	
	All other Occupations...	11422	

In the preceding tables the condition of the Brighton population aged 10 years and upwards is shewn at the census enumerations of 1891 and 1901. The tables themselves contain all that is necessary for the making of comparisons, except in the few instances where alterations in the classification of the Registrar General's tables have rendered this impracticable. For females the number of married and unmarried under each head is given.

A few notes may be made here of some outstanding features. Between 1891 and 1901, the number of male teachers has slightly increased, the number of female teachers has considerably decreased. The number engaged on railways has increased from 770 to 1284. Coachmen and cabmen have decreased from 1269 to 962; carters and carriers have increased from 557 to 986. There are fewer fishermen. There has been a great increase of persons engaged in the building trades. Chemists and druggists are stationary in number, as likewise are doctors. Printers and others engaged with stationery show considerable increase. Drapers are approximately stationary in number. Tailors are fewer in number; so also are milliners and dressmakers, seamstresses and bootmakers. Grocers and other food workers and dealers are more numerous; tobacconists the same. Brewers and other makers of spirituous drinks have greatly increased (281 as against 209). Hotel keepers and publicans number 594 as against 481; cellarmen, barmen, and others engaged in Inn service, 1,022 as against 293, wine and spirit merchants and agents, 83 as against 78. The increases in connection with the liquor-trade, especially among barmen, &c., are so great, that one suspects some changes of classification, but none are visible in the returns. Even if there be such changes, there is a large undoubted increase in those engaged in supplying alcoholic drinks. The number of coffee, eating, lodging and boarding-house keepers is 1,323, as against 1,180. Costermongers remain about the same in number. General labourers have decreased from 1,600 to 1,077. This may be regarded, I hope, as an indication that unskilled is gradually being displaced by skilled labour.

The number of persons retired from business, including pensioners, but not including members of the army or navy, or the clerical or medical professions, was 1,904, as against 1,430 ten years earlier ; the number living on their own means was 5,214, as against 5,203 ; while others having no specified occupation were 36,730 as against 32,189.

BIRTH PLACES OF MALES AND FEMALES ENUMERATED IN THE COUNTY BOROUGH OF BRIGHTON, 1901.

	Males.	Females.
London	4684	8824
Sussex	37066	41536
Other South Eastern Counties ...	3818	5614
South Midland ,, ..	1403	2523
Eastern Counties	1122	1956
South Western Counties	1201	2006
West Midland ,, ...	912	1489
North Midland ,, ...	436	719
North Western ,, ...	478	657
Yorkshire	424	528
Northern Counties	196	256
Monmouthshire and Wales	182	334
England (County not stated) ...	98	176
Other parts of British Empire ...	—	—
Scotland	420	541
Ireland	373	607
British Colonies or Dependencies ..	476	743
Foreign Countries	910	740
At Sea	11	19

Of the above 1650 born in Foreign Countries, only 1140 were foreigners. The Country of birth of these is shewn in the following table :—

COUNTRY OF BIRTH OF FOREIGNERS ENUMERATED IN THE COUNTY BOROUGH OF BRIGHTON, 1901.

	Males.	Females.		Males.	Females.
Europe—			*Asia*	6	4
Russia and Russian Poland	57	36	*Africa*	3	2
Norway, Sweden and Denmark	9	18	*America*—		
Holland and Belgium ...	25	16	United States	42	39
France	82	142	Other States	9	5
Germany	202	78			
Austro-Hungary ...	51	13			
Switzerland	87	42			
Italy	125	38			
Other European Countries	6	3	Total	704	436

It can scarcely be expected that the returns under the following headings will be complete; but they are inserted here as an indication of the facts so far as they are known.

PERSONS RETURNED AS BLIND, DEAF AND DUMB, DEAF, LUNATIC, IMBECILE OR FEEBLE-MINDED, OR SUFFERING FROM COMBINED INFIRMITIES IN THE COUNTY BOROUGH OF BRIGHTON, 1901.

	Total.	From Childhood.	Others.
Blind	198	73	125
Deaf and Dumb	135	99	36
Deaf	125	14	111
Lunatic	88	1	87
Imbecile or Feeble-minded	180	28	152
Combined Infirmities	5*	—	—

*Also included in the totals for the several Infirmities from which they suffer.

AREA, HOUSES AND POPULATION OF DISTRICTS ABUTTING ON THE COUNTY BOROUGH, OR HAVING WATER SUPPLY FROM BRIGHTON.

A. URBAN.

	Area in Statute Acres.	Houses, 1901.				Population.			
		Inhabited.	Uninhabited		Building.	1891	1901.		
			In Occupation	Not in Occupation		Persons.	Persons.	Males	Females.
Hove (M.B.).	1521	6283	174	479	102	28335	36535	13549	22986
Civil Parish of Aldrington *in Hove, M.B.*	743	1270	8	118	43	2238	6840	2785	4055
Portslade-by-Sea (U.D.)	382	1003	16	35	16	4097	5217	2625	2592
New Shoreham (U.D.)...	135	732	50	19	—	3393	3837	1942	1895
Southwick (U.D.) ...	1006	700	12	35	36	2564	3364	1696	1668
B. RURAL.									
East Steyning	11569	451	2	27	4	2040	2301	1073	1228
Newhaven	25127	801	23	47	6	4139	4609	2318	2291

AREA IN STATUTE ACRES OF THE CIVIL PARISHES OF BRIGHTON AND NEIGHBOURING DISTRICTS.

	Area in Statute Acres.			
	Land.	Inland Water.	Tidal Water.	Foreshore.
Brighton	1628	1	—	72
Hove	778	—	—	29
Aldrington	743	—	17	27
Kingston-by-Sea	782	—	10	19
Lancing	2515	19	40	271
New Shoreham	134	1	19	97
Old Shoreham	1923	—	21	25
Portslade-by-Sea	382	—	14	8
Southwick	1006	—	35	6
Rottingdean	3154	—	—	210

REGISTRATION DISTRICTS AND SUB-DISTRICTS WITH THEIR CONSTITUENT CIVIL PARISHES—AREA, HOUSES AND POPULATION 1891 AND 1901, AND SEPARATE OCCUPIERS, 1901.

	Area in Statute Acres.	Houses.					Families or Separate Occupiers. 1901.	Population.	
				Uninhabited					
		Inhabited, 1891.	Inhabited, 1901.	In Occupation, 1901.	Not in Occupation, 1901.	Building.		1891.	1901.
Aldrington	743	382	1270	8	118	43	1646	2238	6840
Falmer	...	—	—	—	—	—	—	543	458
Hangleton	1120	12	15	—	1	—	16	49	69
Hove	778	4009	5013	166	361	59	6632	26097	29695
Patcham	4425	200	238	2	14	1	244	1064	1110
Piecombe	2286	65	63	1	3	—	65	353	307
Portslade	1556	23	49	—	4	3	49	143	287
Portslade-by-Sea ...	382	802	1003	16	35	16	1153	4097	5217
Preston Rural	401	17	19	—	—	—	19	159	213
Rottingdean	3154	248	273	15	10	—	302	1627	1992
Stanmer	1341	25	25	—	2	—	25	147	94
Kingston-by-Sea ...	782	46	110	—	3	4	117	253	545
New Shoreham	135	636	732	50	19	—	792	3393	3837
Old Shoreham	1923	52	51	—	2	—	54	260	281
Southwick	1006	528	700	12	35	36	772	2564	3364
Ovingdean	1630	28	38	1	3	2	40	—	—
Lancing	2534	223	274	68	28	14	280	1285	1244

PERCENTAGE INCREASE OF POPULATION IN CIVIL PARISHES IN 1891 TO 1901.

Brighton, Parish of	*nil*
Preston ,,	60·7
Total County Borough of Brighton	6·6

Aldrington, Parish of	205·6
Hove ,,	13·8
Total Municipal Borough of Hove	28·9

Portslade, Parish of	100·6
Portslade-by-Sea, Parish of	27·3
Preston Rural ,,	33·9
Kingston-by-Sea ,,	115·4
New Shoreham ,,	13·1
Old Shoreham ,,	8·1
Southwick ,,	31·2
Rottingdean ,,	22·4
Patcham ,,	4·3

PERCENTAGE DECLINE OF POPULATION IN 1891 TO 1901.

Falmer, Parish of	15·7
Piecombe ,,	13·1
Stanmer ,,	36·1

This table shows the rate of increase of population in the districts about Brighton. So far as those parishes are concerned, which have ready and rapid means of communication with Brighton, the rate of growth is determined largely, if not chiefly, by the space for growth. Thus the population of the parish of Hove has only increased 13·8 per cent. in 1891-1901, as compared with 25·9 per cent. in the preceding decennium, while Preston, in the County Borough, has increased nearly 61 per cent. on a population of 13,157 in 1891. Aldrington, in the Borough of Hove, has increased nearly 206 per cent. on a population of 2,238 in 1891, Portslade-by-Sea has increased over 27 per cent., Kingston-by-Sea over 115 per cent., and Southwick over 31 per cent.

The preceding tables and the comments on them embody matter, which will, it is hoped, be of value and interest to those interested in the welfare of Brighton and the surrounding districts.

I am, Gentlemen,

Yours obediently,

Arthur Newsholme, M.D.

MEDICAL OFFICER OF HEALTH.